Drinking Water Surveillance Program

BURLINGTON WATER TREATMENT PLANT

Annual Report 1987

Environment Ontario
Jim Bradley, Minister

ISSN 0840-5247

BURLINGTON
WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1987

ONTARIO MINISTRY OF ENVIRONMENT
OCTOBER 1988
Reprinted May 1989

ACKNOWLEDGEMENTS

The Drinking Water Surveillance Program (DWSP) employs a team approach requiring the co-operative effort of the Ministry of the Environment (MOE) staff from Water Resources and Laboratory Services Branch and the Regions, as well as plant operational staff from the Municipalities.

This annual report was produced by the DWSP Group (Ron Hunsinger, Peter Bohm, Carol Sackville-Duyvelshoff, Chris Fung and John McGrachan) and by Pat Lachmaniuk (on developmental assignment to the Drinking Water Section). Helpful input and reviews were received from Drinking Water Section Staff, in addition to reviews by other MOE and municipal personnel.

EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

BURLINGTON WATER TREATMENT PLANT 1987 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 44 plants are being monitored.

The Burlington Water Treatment Plant is a direct filtration plant which treats water from Lake Ontario. The treatment process consists of coagulation, flocculation, filtration, disinfection and fluoridation. This plant serves a population of approximately 120,000 and has a design capacity of 227 x 1000m3/day.

Water samples from the raw, treated and two distribution system sites were taken on a monthly basis. Sampling at distribution system site one was discontinued in September. The Burlington Water Treatment Plant was sampled for approximately 160 parameters, 12 times during 1987. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organic (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Chlorophenols and Specific Pesticides were analysed for in June and November only.

A summary of results is shown in Table 1.

Due to its sampling frequency of once per month, the DWSP is not designed to evaluate all aspects of the bacteriological quality of water, however routine bacteriological monitoring as recommended in the Ontario Drinking Water Objectives (ODWOs) is carried out by the operating authority. In terms of the limited DWSP bacteriological examination the water was of good quality.

Inorganic and Physical parameters were below any applicable health related ODWO's.

Of a total of approximately 110 Organic parameters tested for on a monthly basis, none exceeded health related guidelines.

Many of the substances detected were naturally-occurring or treatment by-products.

During 1987 the DWSP sampling results indicated that the Burlington Water Treatment Plant produced good quality water at the plant and this quality was maintained throughout the distribution system.

SOMMAIRE
PROGRAMME DE SURVEILLANCE DE L'EAU POTABLE

STATION D'ÉPURATION DE L'EAU DE BURLINGTON
RAPPORT ANNUEL 1987

Le Programme de surveillance de l'eau potable (PSEP) de l'Ontario fournit des informations immédiates, fiables et à jour sur la qualité de l'eau potable. Le PSEP a débuté officiellement en avril 1986. Il est destiné à englober tous les réseaux municipaux d'alimentation en eau de l'Ontario. Actuellement, 44 stations en font partie.

La station d'épuration de Burlington est une station de filtration sans décantation qui traite l'eau du lac Ontario. Le traitement comporte la coagulation, la floculation, la filtration, la désinfection et la fluoration. La station dessert une population d'environ 120 000 habitants et a une capacité nominale de 227 x 1 000 m3/jour.

Des prélèvements d'eau brute et d'eau traitée ainsi qu'en deux points du réseau de distribution ont été effectués chaque mois, mais les prélèvements dans le réseau de distribution ont été interrompus en septembre. Douze fois en 1987, ces prélèvements ont été analysés par rapport à environ 160 paramètres dans les catégories suivantes : bactériologique, inorganique et physique (analyses en laboratoire et sur place, présence de métaux) et organique (composés aromatiques chlorés, chlorophénols, pesticides et BPC, dérivés phénoliques, hydrocarbures aromatiques polynucléaires, pesticides particuliers et composés volatils). Les chlorophénols et les pesticides particuliers n'ont été analysés qu'en juin et en novembre.

Le tableau 1 résume les résultats obtenus.

En raison de la fréquence des prélèvements (un par mois), le PSEP ne permet pas d'évaluer tous les aspects de la qualité bactériologique de l'eau. Cependant, comme on le recommande dans le cadre des objectifs relatifs à la qualité de l'eau potable en Ontario, un contrôle bactériologique systématique est effectué par l'exploitant. L'analyse bactériologique limitée du PSEP a révélé une eau de bonne qualité.

Les mesures des paramètres inorganiques et physiques étaient inférieures aux limites applicables fixées par l'Ontario pour l'eau potable.

Pour environ 110 paramètres organiques mesurés chaque mois, aucun résultat n'a dépassé les limites acceptables fixées pour la santé.

Un grand nombre de substances détectées apparaissent naturellement ou sont des produits dérivés de l'épuration.

Les résultats des analyses effectuées en 1987 dans le cadre du PSEP ont indiqué que la station d'épuration de Burlington donnait une eau de bonne qualité et que cette qualité se maintenait dans tout le réseau de distribution.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE BY SCAN (1987)

	RAW			TREATED			SITE 1			SITE 2		
SCAN	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	46	43	93	52	10	19	31	5	16	53	16	30
CHEMISTRY (FLD)	35	35	100	71	71	100	64	64	100	107	107	100
CHEMISTRY (LAB)	225	191	84	225	170	75	261	213	81	393	323	82
METALS	243	127	52	243	117	48	315	161	51	452	259	57
CHLOROAROMATICS	143	0	0	156	0	0	104	0	0	156	0	0
CHLOROPHENOLS	12	0	0	12	0	0	.	.	.	.	.	.
PAH	51	0	0	51	0	0	.	.	.	.	.	.
PESTICIDES & PCB	275	0	0	297	0	0	197	0	0	297	0	0
PHENOLICS	12	1	8	12	2	16	1	0	0	1	0	0
SPECIFIC PESTICIDES	162	0	0	162	0	0	72	0	0	108	0	0
VOLATILES	338	0	0	339	48	14	225	32	14	337	48	14
TOTAL	1542	397		1620	418		1270	475		1904	753	

NO HEALTH RELATED GUIDELINES/LIMITS WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE

A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

BURLINGTON WATER TREATMENT PLANT
1987 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 44 plants are being monitored. Appendix A contains a detailed description of the DWSP.

The DWSP was initiated at the Burlington Water Treatment Plant in August of 1986.

This report contains information and results for 1987.

PLANT DESCRIPTION

The Burlington Water Treatment Plant is a direct filtration plant which treats water from Lake Ontario. The process consists of coagulation, flocculation, filtration, disinfection and fluoridation. A polyelectrolyte is added as a coagulant aid. This plant serves a population of 120,000 people. It has a rated capacity of 164 x 1000m3/day and daily flows ranging from 56 x 1000m3/day to 143 x 1000m3/day.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

METHODS

Water samples were obtained from four DWSP approved locations;

i) Plant Raw - The water originated from the raw water low lift well prior to chlorination and was sampled through a stainless steel sample line. The sample tap is located near the lowlift well.

ii) Plant Treated - The water originated from the reservoir after addition of all treatment chemicals and was sampled through a stainless steel sample line. The sample tap is located in the lab.

iii) Distribution System - Site 1 - This house is approximately 4 kilometers from the plant. Water was sampled through a copper sample line at the basement tap.

iv) Distribution System - Site 2 - This house is approximately 5 kilometers from the plant. Water was sampled through a copper sample line at the basement tap.

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

SITE LOCATION MAP

LOCATION: BURLINGTON WATER TREATMENT PLANT

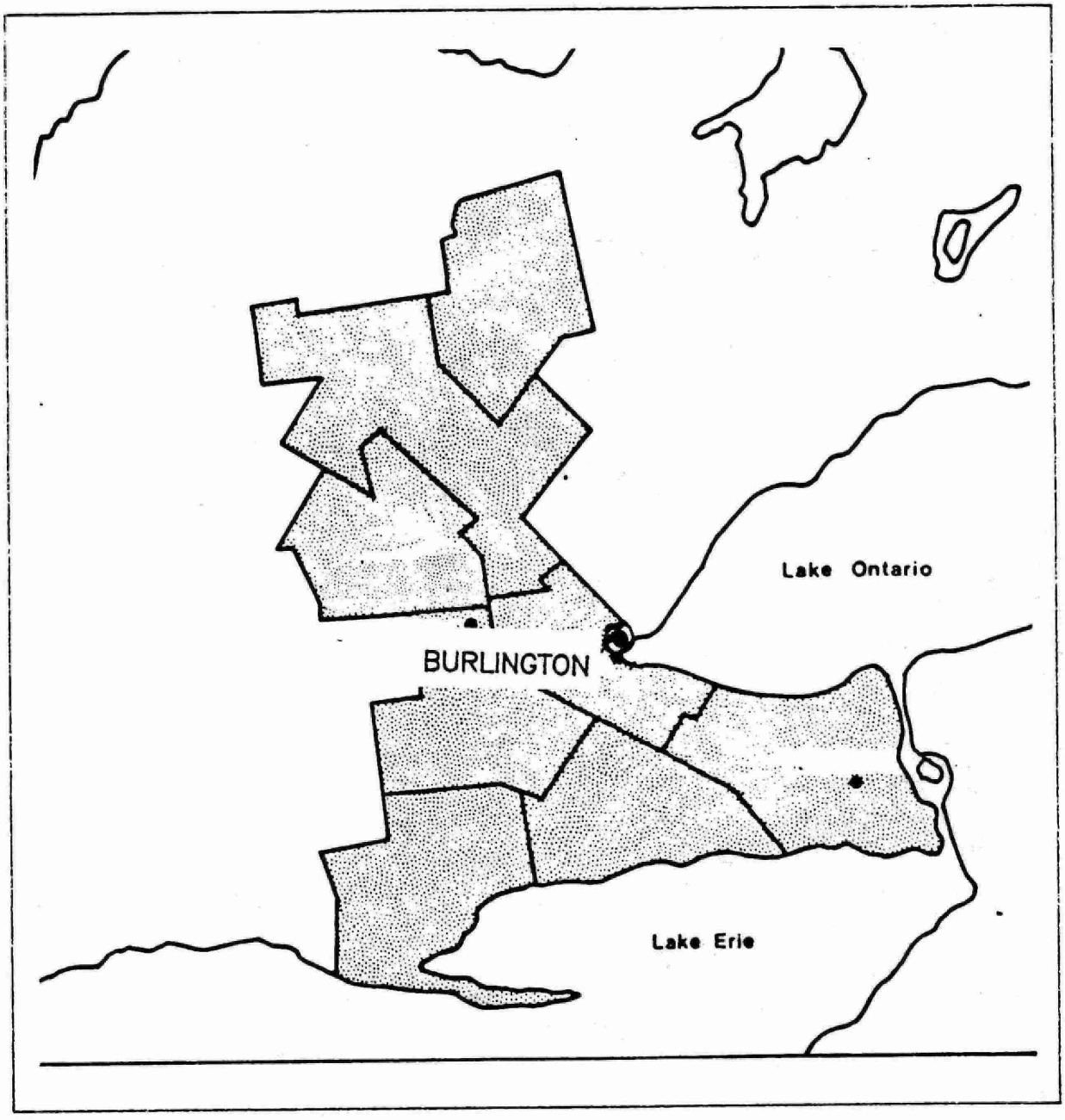


Figure 2

BURLINGTON WATER TREATMENT PLANT

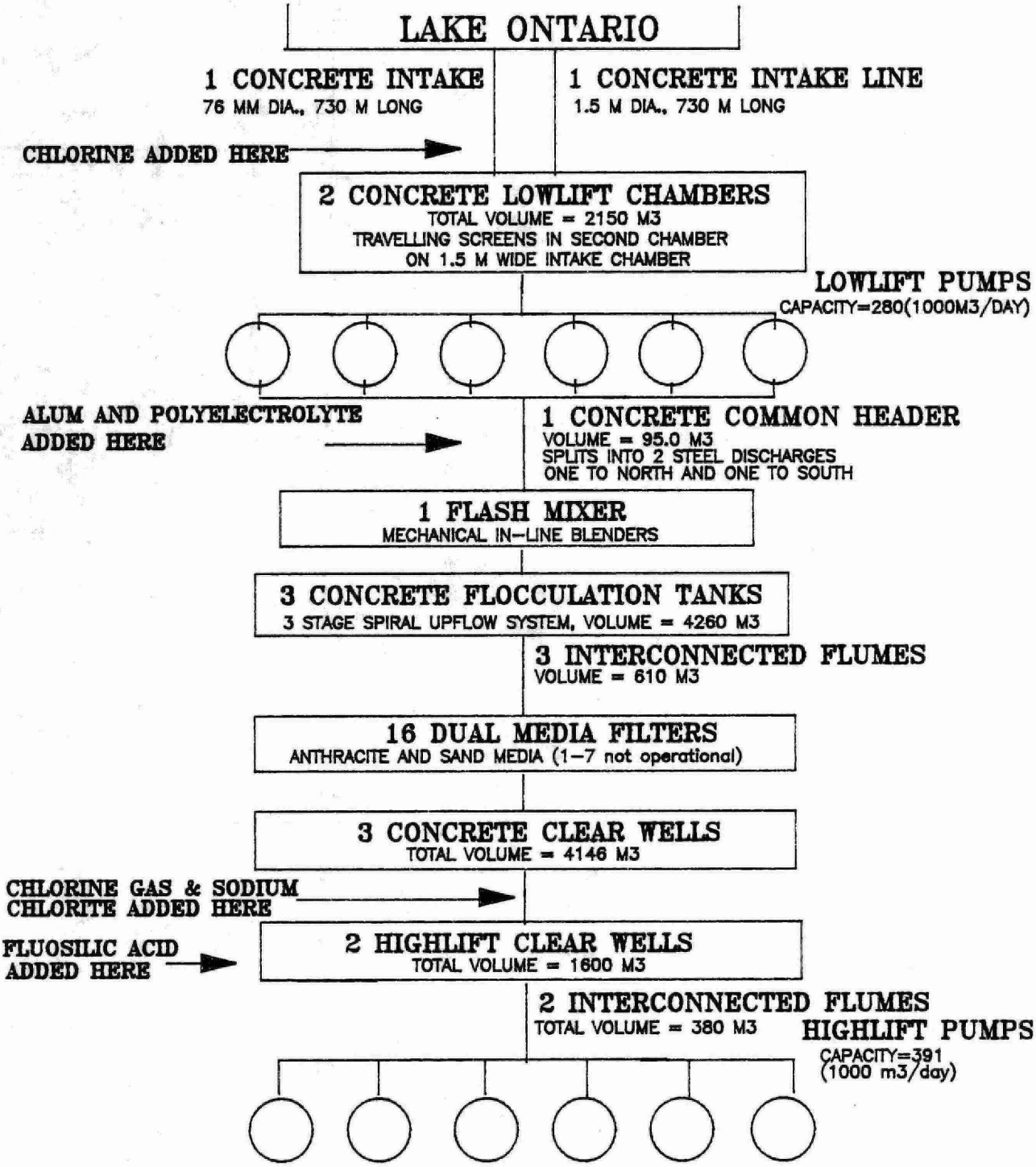


TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

BURLINGTON WATER SUPPLY SYSTEM

LOCATION:	3249 LAKESHORE ROAD EAST BURLINGTON, ONTARIO (416-827-2151)
SOURCE:	RAW WATER SOURCE - LAKE ONTARIO
RATED CAPACITY:	164 (1000 M3/DAY)
OPERATION:	MUNICIPAL
PLANT SUPERINTENDENT:	D. CLANCY
MINISTRY REGION:	CENTRAL
DISTRICT OFFICER:	G.B. NELSON

MUNICIPALITY SERVED	POPULATION
BURLINGTON WATERDOWN	120,000

At the distribution system location two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing due to leaching from (or deposition on) the plumbing system. The only analyses carried out on these samples therefore, are General Chemistry and Metals. The free flow sample represented fresh water from the distribution mainthat had been flowing at the sample tap for five minutes before being sampled.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval between the raw and treated sampling. Similarily, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to eliminate any variance (Appendix B).

Sample day flow, treatment chemical dosages and Field Chemistry

measurements such as Turbidity, Chlorine Residuals, pH and Temperature were recorded on the day of sampling and were entered on the DWSP data base as submitted.

RESULTS

The Burlington Water Treatment Plant was sampled for approximately 160 parameters on a monthly basis. The distribution system Site 1 was discontinued in September.

The Specific Pesticides and Chlorophenols scans were sampled for in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics were only analysed for in the raw and treated water at the plant.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analysed for by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit

that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 presents parameters not detected.

Associated guidelines and detection limits are also supplied on both tables. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, these are are currently under review. When an ODWO is not available guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS) recently initiated by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

As stated under Results, traces do not indicate quantifiable values, as defined by established MOE Laboratory analytical reporting protocols. The occasional finding of a trace level of a contaminant is thus not considered to be significant. They can

be useful in trend analysis, or confirmation of a specific contaminant that is repeatedly detected at these levels. **DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.**

Bacteriology

Positive results for the Bacteriology scan were present ten times in the treated water, five times in the distribution system Site 1 water and sixteen times in the Site 2 water. The positive parameters were Standard Plate Count, Total Coliform and/or Total Coliform Background and Presence/Absence test.

Coliforms were present by the Presence/Absence test in the August distribution system Site 2 sample and were detected at 2 counts/100 mL by the membrane filtration test at the same location in September.

No ODWOs were exceeded.

Due to its sampling frequency of once per month, the DWSP is not designed to evaluate all aspects of the bacteriological quality of water. Routine Bacteriological monitoring as recommended in the ODWOs is carried out by the operating authority. Water from the Burlington Water Treatment Plant, in terms of the limited DWSP bacteriological examination, was of good quality.

Inorganic and Physical Parameters

Laboratory and Field Chemistry

The results for Laboratory and Field Chemistry scans were below any applicable health related ODWOs.

There are ODWOs that are set for parameters which are related to aesthetic quality rather than health; one of these is Organic Nitrogen. Organic Nitrogen is calculated by subtracting the value for Ammonia (Ammonium Total) from the value for Total Kjeldahl Nitrogen (Nitrogen Tot Kjeld). The aesthetic ODWO of 0.15 mg/l was exceeded in many of the treated water samples and distribution system samples. When Organic Nitrogen exceeds 0.15 mg/l in treated water taste and odour problems can result.

This guideline is exceeded in most supplies. Based on the information obtained from the DWSP, which generally indicates no problems with this parameter exceedence, the guideline may be modified when the ODWOs are reviewed.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The desired ODWO was exceeded in three of the treated water samples and five of the distribution system samples in the summer and fall months.

As part of the treatment plant process fluosilic acid is added to the treated water (Table 3). Where fluoridation is practised, the fluoride concentration recommended in the ODWO is 1.2 mg/L, plus or minus 0.2 mg/L. Results indicate that the plant was occasionally underdosing and the recommended level was only achieved five times..

Metals

The results reported for the Metal scan were below any applicable ODWOs.

Elevated levels of Copper, Nickel, Zinc and occasionally Lead were detected in the standing samples as compared to the free flow distribution samples, indicating that these metals were leached from the household plumbing as the water stood overnight.

The Cadmium value for the July distribution system Site 1 free flow sample was 0.700 ug/L , this was below the ODWO of 5.0 ug/L and was the only analysis for the year that was above the detection limit.

Mercury levels in the raw and treated water samples were much higher in the April, May and June samples as compared to other months however the ODWO of 1.0 ug/L was not exceeded. Over the past year in the DWSP it has been observed that potassium dichromate, a preservative for mercury samples, has a limited shelf-life and may show false positives for the presence of

Mercury. As the preservative deteriorates Mercury levels may increase as a result of interferences and was replaced in July.

At present, there is no evidence that Aluminum is physiologically harmful and no limit has been specified. The measure of residual Aluminum in the treated water is important to indicate efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 0.1 mg/L as Al in the water leaving the plant. Aluminum values exceeded the ODWO operational guideline on six occasions in the treated waters.

Organic Parameters

Chloroaromatics

The results of the Chloroaromatics scan showed that seven parameters were detected:

Hexachloroethane
2,4,5-Trichlorotoluene
2,3,6-Trichlorotoluene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,2,3,5-Tetrachlorobenzene
Pentachlorobenzene

Hexachloroethane was detected once at trace levels, in the treated water and in the distribution system Site 1 water.

2,4,5-Trichlorotoluene was detected once at a trace level in the treated water and once at distribution system Site 2.

1,2,3-Trichlorobenzene was detected at trace levels, once at all sampling sites.

1,2,3,5-Tetrachlorobenzene was detected at trace levels, once in the treated water and once in the distribution system Site 2 water.

1,2,4-Trichlorobenzene was detected once at a trace level in the treated water.

Pentachlorobenzene was detected at trace levels, once in the raw water, once in the treated water and once in the distribution system Site 2 water.

2,3,6- Trichlorotoluene was detected once at a trace level in the distribution Site 1 sample.

It is interesting to note that most of these detections occured in samples from the same month (April).

Review of these results, along with information from other water supplies on DWSP, would indicate that certain Chloroaromatics appear more frequently in the treated water than in the raw and almost always only at trace levels. These occurrences could possibly be due to a reaction of chlorine with organics present

in the water or in the distribution sytem.

Chlorophenols

The results of the Chlorophenol scan showed that no Chlorophenols were detected.

Pesticides and PCB

Results of the Pesticides and PCB scan showed that four pesticides were detected:

Alpha BHC

Beta BHC

Lindane

Atratone

Lindane consists of several isomers of BHC. Alpha BHC is the isomer most predominantly found in the Great Lakes basin as indicated by results from other water supplies on DWSP.

Alpha BHC (benzene hexachloride) was detected at trace levels in, nine of the raw water samples, ten of the treated water samples, six of the distribution system Site 1 waters and eleven of the Site 2 waters.

Beta BHC was detected at trace levels, once in the treated water and once in the distribution system Site 1 water.

Lindane was detected at trace levels, twice in the raw water, three times in the treated water, four times in the distribution

system Site 1 water and four times in the Site 2 water.

Atratone was detected at a trace level, once in the distribution system Site 1 water.

Specific Pesticides

The results of the Specific Pesticide scan showed that two pesticides were detected:

Atrazine

Prometone

Atrazine was detected at trace levels, once in the raw water and once in the distribution system Site 1 water.

Prometone was detected at trace levels, once in the distribution system Site 1 water.

Phenolics

Phenolics were detected at trace levels, four times in the raw water and twice in the treated water. One positive result was detected in the May raw water sample at a value of 0.8 ug/L and two positives were detected in the May and June treated water samples at 0.6 ug/L and 1.0 ug/L. These values were below the aesthetic ODWO of 2.0 ug/L. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

Polynuclear Aromatic Hydrocarbons (PAH)

The results of the PAH scan showed that no PAHs were detected.

Volatiles

The results of the Volatile scan showed that five parameters, other than Trihalomethanes(THMs) were detected:

Benzene

Toluene

Ethylbenzene

Para & Meta-Xylene

Ortho-Xylene

Benzene was detected at trace levels, twice in the treated water and twice in the distribution system Site 2 water.

Toluene was detected at trace levels, once in the raw water sample, three times in the treated water and once in the distribution system Site 2 water.

Ethylbenzene was detected at trace levels, once in the raw water, four times in the treated water and once in the distribution system Site 2 water.

Para and Meta-Xylene are measured as one compound, M-Xylene and were detected at trace levels, once in the raw water, twice in the treated water and twice in the distribution system Site 2 water.

Ortho-Xylene (O-Xylene) was detected at trace levels, once in the raw water, treated water and distribution system Site 2 water.

These volatiles are typically found on an occasional basis at other water supplies included on the DWSP, usually at trace levels.

THMs are known to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised mainly of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Chlorodibromomethane, Dichlorobromomethane and Total THMs were detected in all treated waters. Bromoform was detected at trace levels, six times in the treated water, twice in the distribution system Site 1 water and six times in the Site 2 water. All THM occurrences were well below the ODWO of 350 UG/L for Total THMs.

CONCLUSIONS

The Burlington Water Treatment Plant for the sample year of 1987 produced good quality water at the plant and this was maintained throughout the distribution system.

No health related guidelines, for organic or inorganic parameters, were exceeded during 1987.

RECOMMENDATIONS

Three recommendations can be made:

1) The data base should be reviewed in consultation with Regional, Plant and DWSP personnel to determine if sampling location, sampling frequency and the number of parameters analysed could be revised to allow for a more efficient characterization of the water.

2) The fluoride dosage should be adjusted so that recommended levels of fluoride are achieved in distributed water.

3) The occasional high levels of Lead in the standing water at the distribution system Site 2 should be investigated.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)				
			PRE-CHLORINATION	COAGULATION	COAGULATION AID	FLUORIDATION	POST-CHLORINATION
			CHLORINE	ALUM LIQUID	POLYELECTROLYTE	FLUOSILIC ACID	CHLORINE
DATE	RETENTION TIME(HRS)	FLOW (1000 M3)					
JAN 05	1.5	56.5	.74	2.16	.26	1.05	.38
FEB 02	1.5	56.2	.73	2.18	.17	1.05	.33
MAR 02	1.5	56.1	1.10	2.97	.52	1.04	.45
APR 06	.9	92.5	1.19	46.61	3.31	.93	.34
MAY 04	1.3	63.3	.91	6.53	.39	1.04	.48
JUN 01	.5	143.0	1.44	4.95	.43	1.02	.44
JUL 06	.2	69.1	.	6.77	.69	.43	2.09
AUG 04	.9	94.0	1.30	23.89	.86	.95	.52
SEP 08	1.0	84.0	1.15	8.83	.48	.96	.51
OCT 06	1.0	85.0	.82	3.73	.65	.95	.51
NOV 03	1.1	74.6	.86	1.84	.29	1.00	.53
DEC 08	2.0	42.4	.72	1.91	.30	1.06	.33

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

		RAW WATER			TREATED WATER			SITE 1			SITE 2		
SCAN	PARAMETER	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
BACTERIOLOGICAL	AEROMONAS SP	0	0	0	1	0	0	0	0	0	1	0	0
	COLIFORM	0	0	0	1	0	0	0	0	0	1	1	0
	ESCHERICHIA COLI BY PRESENCE/ABSENCE	0	0	0	1	0	0	0	0	0	1	0	0
	FECAL COLIFORM	0	0	0	1	0	0	0	0	0	1	0	0
	FECAL COLIFORM MEMBRANE FILTRATION	11	8	0	0	0	0	0	0	0	0	0	0
	P/A BOTTLE	0	0	0	12	1	0	8	0	0	12	1	0
	STANDARD PLATE COUNT MEMBRANE FILT.	11	11	0	11	7	0	7	5	0	12	12	0
	STAPH AUREUS	0	0	0	1	0	0	0	0	0	1	0	0
	TOTAL COLIFORM BACKGROUND MF	12	12	0	12	2	0	8	0	0	12	1	0
	TOTAL COLIFORM MEMBRANE FILTRATION	12	12	0	12	0	0	8	0	0	12	1	0
*TOTAL SCAN BACTERIOLOGICAL		46	43	0	52	10	0	31	5	0	53	16	0
*TOTAL GROUP BACTERIOLOGICAL		46	43	0	52	10	0	31	5	0	53	16	0
CHEMISTRY (FLD)	FIELD COMBINED CHLORINE RESIDUAL	0	0	0	11	11	0	8	8	0	13	13	0
	FIELD FREE CHLORINE RESIDUAL	0	0	0	12	12	0	8	8	0	19	19	0
	FIELD PH	11	11	0	12	12	0	16	16	0	22	22	0
	FIELD TEMPERATURE	12	12	0	12	12	0	16	16	0	22	22	0
	FIELD TOTAL CHLORINE RESIDUAL	0	0	0	12	12	0	16	16	0	21	21	0
	FIELD TURBIDITY	12	12	0	12	12	0	0	0	0	10	10	0
*TOTAL SCAN CHEMISTRY (FLD)		35	35	0	71	71	0	64	64	0	107	107	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0	16	16	0	24	24	0
	AMMONIUM TOTAL	12	8	3	12	4	7	16	8	6	24	13	8

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

		RAW WATER			TREATED WATER			SITE 1			SITE 2		
SCAN	PARAMETER	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
CHEMISTRY (LAB)	CALCIUM	12	12	0	12	12	0	16	16	0	24	24	0
	CHLORIDE	12	12	0	12	12	0	16	16	0	24	24	0
	COLOUR	12	3	9	12	0	12	16	0	16	24	0	24
	CONDUCTIVITY	12	12	0	12	12	0	16	16	0	24	24	0
	CYANIDE	9	0	0	9	0	0	5	0	0	9	0	0
	FLUORIDE	12	12	0	12	12	0	16	16	0	24	24	0
	HARDNESS	12	12	0	12	12	0	16	16	0	24	24	0
	MAGNESIUM	12	12	0	12	12	0	16	16	0	24	24	0
	NITRITE	12	9	2	12	1	9	16	0	14	24	2	18
	NITROGEN TOTAL KJELDAHL	12	12	0	12	11	1	16	13	3	24	23	1
	PH	12	12	0	12	12	0	16	16	0	24	24	0
	PHOSPHORUS FIL REACT	12	7	4	12	7	4	0	0	0	0	0	0
	PHOSPHORUS TOTAL	12	8	3	12	3	6	0	0	0	0	0	0
	SODIUM	12	12	0	12	12	0	16	16	0	24	24	0
	TOTAL NITRATES	12	12	0	12	12	0	16	16	0	24	22	0
	TOTAL SOLIDS	12	12	0	12	12	0	16	16	0	24	24	0
	TURBIDITY	12	12	0	12	12	0	16	16	0	24	23	1
*TOTAL SCAN CHEMISTRY (LAB)		225	191	21	225	170	39	261	213	39	393	323	52
METALS	ALUMINUM	12	11	0	12	9	0	16	16	0	23	22	0
	ARSENIC	12	0	0	12	1	0	16	0	0	23	0	0
	BARIUM	12	12	0	12	12	0	16	16	0	23	23	0
	BERYLLIUM	12	0	0	12	0	0	16	0	0	23	0	0
	BORON	12	4	8	12	4	8	16	8	6	23	8	14
	CADMIUM	12	0	0	12	0	0	16	1	0	23	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER # ANALYSED	RAW WATER POSITIVE	RAW WATER TRACE	TREATED WATER # ANALYSED	TREATED WATER POSITIVE	TREATED WATER TRACE	SITE 1 # ANALYSED	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 # ANALYSED	SITE 2 POSITIVE	SITE 2 TRACE
METALS	CHROMIUM	12	8	0	12	6	0	16	6	0	23	14	0
	COBALT	12	1	0	12	1	0	16	0	0	23	3	0
	COPPER	12	10	0	12	9	0	16	15	0	23	23	0
	CYANIDE	3	0	0	3	0	0	3	0	0	3	0	0
	IRON	12	11	0	12	9	0	16	13	0	23	23	0
	LEAD	12	1	0	12	1	0	16	2	0	23	10	0
	MANGANESE	12	12	0	12	8	0	16	9	0	23	22	0
	MERCURY	12	9	0	12	11	0	8	7	0	12	11	0
	MOLYBDENUM	12	9	0	12	10	0	16	14	0	23	22	0
	NICKEL	12	5	0	12	5	0	16	9	0	23	13	0
	SELENIUM	12	0	0	12	0	0	16	0	0	23	0	0
	STRONTIUM	12	12	0	12	12	0	16	16	0	23	23	0
	URANIUM	12	11	1	12	11	1	16	14	2	23	21	2
	VANADIUM	12	3	0	12	2	0	16	2	0	23	1	0
	ZINC	12	8	0	12	6	0	16	13	0	23	20	0
*TOTAL SCAN METALS		243	127	9	243	117	9	315	161	8	452	259	16
*TOTAL GROUP INORGANIC & PHYSICAL		503	353	30	539	358	48	640	438	47	952	689	68
CHLOROAROMATICS	123 TRICHLOROBENZENE	11	0	1	12	0	1	8	0	1	12	0	1
	1234 TETRACHLOROBENZENE	11	0	0	12	0	0	8	0	0	12	0	0
	1235 TETRACHLOROBENZENE	11	0	0	12	0	1	8	0	0	12	0	1
	124 TRICHLOROBENZENE	11	0	0	12	0	1	8	0	0	12	0	0
	1245 TETRACHLOROBENZENE	11	0	0	12	0	0	8	0	0	12	0	0
	135 TRICHLOROBENZENE	11	0	0	12	0	0	8	0	0	12	0	0
	236 TRICHLOROTOLUENE	11	0	0	12	0	0	8	0	1	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER # ANALYSED	RAW WATER POSITIVE	RAW WATER TRACE	TREATED WATER # ANALYSED	TREATED WATER POSITIVE	TREATED WATER TRACE	SITE 1 # ANALYSED	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 # ANALYSED	SITE 2 POSITIVE	SITE 2 TRACE
CHLOROAROMATICS	245 TRICHLOROTOLUENE	11	0	0	12	0	1	8	0	1	12	0	0
	26A TRICHLOROTOLUENE	11	0	0	12	0	0	8	0	0	12	0	0
	HEXACHLOROBUTADIENE	11	0	0	12	0	0	8	0	0	12	0	0
	HEXACHLOROETHANE	11	0	0	12	0	1	8	0	1	12	0	0
	OCTACHLOROSTYRENE	11	0	0	12	0	0	8	0	0	12	0	0
	PENTACHLOROBENZENE	11	0	1	12	0	1	8	0	0	12	0	1
*TOTAL SCAN CHLOROAROMATICS		143	0	2	156	0	6	104	0	4	156	0	3
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	2345 TETRACHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	2356 TETRACHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	245-TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	246-TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	PENTACHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
*TOTAL SCAN CHLOROPHENOLS		12	0	0	12	0	0	0	0	0	0	0	0
PAH	ANTHANTHRENE	0	0	0	0	0	0	0	0	0	0	0	0
	ANTHRACENE	3	0	0	3	0	0	0	0	0	0	0	0
	BENZO(A) ANTHRACENE	3	0	0	3	0	0	0	0	0	0	0	0
	BENZO (A) PYRENE	3	0	0	3	0	0	0	0	0	0	0	0
	BENZO(B) CHRYSENE	3	0	0	3	0	0	0	0	0	0	0	0
	BENZO(B) FLUORANTHENE	3	0	0	3	0	0	0	0	0	0	0	0
	BENZO(E)PYRENE	3	0	0	3	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER # ANALYSED	RAW WATER POSITIVE	RAW WATER TRACE	TREATED WATER # ANALYSED	TREATED WATER POSITIVE	TREATED WATER TRACE	SITE 1 # ANALYSED	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 # ANALYSED	SITE 2 POSITIVE	SITE 2 TRACE
PAH	BENZO(G,H,I) PERYLENE	3	0	0	3	0	0	0	0	0	0	0	0
	BENZO(J) FLUORANTHENE	0	0	0	0	0	0	0	0	0	0	0	0
	BENZO(K) FLUORANTHENE	3	0	0	3	0	0	0	0	0	0	0	0
	CHRYSENE	3	0	0	3	0	0	0	0	0	0	0	0
	CORONENE	3	0	0	3	0	0	0	0	0	0	0	0
	DIBENZO(A,H) ANTHRACENE	3	0	0	3	0	0	0	0	0	0	0	0
	DIMETHYL BENZO(A) ANTHRACENE	3	0	0	3	0	0	0	0	0	0	0	0
	FLUORANTHENE	3	0	0	3	0	0	0	0	0	0	0	0
	INDENO(1,2,3-C,D) PYRENE	3	0	0	3	0	0	0	0	0	0	0	0
	PERYLENE	3	0	0	3	0	0	0	0	0	0	0	0
	PHENANTHRENE	3	0	0	3	0	0	0	0	0	0	0	0
	PYRENE	3	0	0	3	0	0	0	0	0	0	0	0
*TOTAL SCAN PAH		51	0	0	51	0	0	0	0	0	0	0	0
PESTICIDES & PCB	ALACHLOR	12	0	0	12	0	0	8	0	0	12	0	0
	ALDRIN	11	0	0	12	0	0	8	0	0	12	0	0
	ALPHA BHC	11	0	9	12	0	10	8	0	6	12	0	11
	ALPHA CHLORDANE	11	0	0	12	0	0	8	0	0	12	0	0
	ATRATONE	12	0	0	12	0	0	8	0	1	12	0	0
	BETA BHC	11	0	0	12	0	1	8	0	1	12	0	0
	DIELDRIN	11	0	0	12	0	0	8	0	0	12	0	0
	ENDRIN	11	0	0	12	0	0	8	0	0	12	0	0
	ETHLYENE DIBROMIDE	9	0	0	9	0	0	5	0	0	9	0	0
	GAMMA CHLORDANE	11	0	0	12	0	0	8	0	0	12	0	0
	HEPTACHLOR	11	0	0	12	0	0	8	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER # ANALYSED	RAW WATER POSITIVE	RAW WATER TRACE	TREATED WATER # ANALYSED	TREATED WATER POSITIVE	TREATED WATER TRACE	SITE 1 # ANALYSED	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 # ANALYSED	SITE 2 POSITIVE	SITE 2 TRACE
PESTICIDES & PCB	HEPTACHLOR EPOXIDE	11	0	0	12	0	0	8	0	0	12	0	0
	HEXACHLOROBENZENE	11	0	0	12	0	0	8	0	0	12	0	0
	LINDANE	11	0	2	12	0	3	8	0	4	12	0	4
	METHOXYCHLOR	11	0	0	12	0	0	8	0	0	12	0	0
	MIREX	11	0	0	12	0	0	8	0	0	12	0	0
	O,P-DDT	11	0	0	12	0	0	8	0	0	12	0	0
	OXYCHLORDANE	11	0	0	12	0	0	8	0	0	12	0	0
	PCB	11	0	0	12	0	0	8	0	0	12	0	0
	PP-DDD	11	0	0	12	0	0	8	0	0	12	0	0
	PPDDE	11	0	0	12	0	0	8	0	0	12	0	0
	PPDDT	11	0	0	12	0	0	8	0	0	12	0	0
	THIODAN I	11	0	0	12	0	0	8	0	0	12	0	0
	THIODAN II	11	0	0	12	0	0	8	0	0	12	0	0
	THIODAN SULPHATE	11	0	0	12	0	0	8	0	0	12	0	0
*TOTAL SCAN PESTICIDES & PCB		275	0	11	297	0	14	197	0	12	297	0	15
PHENOLICS		12	1	4	12	2	2	1	0	0	1	0	0
*TOTAL SCAN PHENOLICS		12	1	4	12	2	2	1	0	0	1	0	0
SPECIFIC PESTICIDES		2	0	0	2	0	0	0	0	0	0	0	0
	2,4 D PROPIONIC ACID	2	0	0	2	0	0	0	0	0	0	0	0
	2,4,5-T	2	0	0	2	0	0	0	0	0	0	0	0
	2,4-D	2	0	0	2	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

		RAW WATER			TREATED WATER			SITE 1			SITE 2		
SCAN	PARAMETER	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
SPECIFIC PESTICIDES	24-DICHLORORPHENOXYBUTYRIC	2	0	0	2	0	0	0	0	0	0	0	0
	AMETRYNE	12	0	0	12	0	0	8	0	0	12	0	0
	AMINOCARB	0	0	0	0	0	0	0	0	0	0	0	0
	ATRAZINE	12	0	1	12	0	0	8	0	1	12	0	0
	BENOMYL	0	0	0	0	0	0	0	0	0	0	0	0
	BLADEX	12	0	0	12	0	0	8	0	0	12	0	0
	BUX (METALKAMATE)	2	0	0	2	0	0	0	0	0	0	0	0
	CARBOFURAN	2	0	0	2	0	0	0	0	0	0	0	0
	DIALLATE	2	0	0	2	0	0	0	0	0	0	0	0
	DIAZINON	2	0	0	2	0	0	0	0	0	0	0	0
	DICAMBA	2	0	0	2	0	0	0	0	0	0	0	0
	DICHLOROVOS	2	0	0	2	0	0	0	0	0	0	0	0
	DURSBAN	2	0	0	2	0	0	0	0	0	0	0	0
	EPTAM	2	0	0	2	0	0	0	0	0	0	0	0
	ETHION	2	0	0	2	0	0	0	0	0	0	0	0
	GUTHION	0	0	0	0	0	0	0	0	0	0	0	0
	IPC	2	0	0	2	0	0	0	0	0	0	0	0
	MALATHION	2	0	0	2	0	0	0	0	0	0	0	0
	METHYL PARATHION	2	0	0	2	0	0	0	0	0	0	0	0
	METHYLTRITHION	2	0	0	2	0	0	0	0	0	0	0	0
	METOLACHLOR	12	0	0	12	0	0	8	0	0	12	0	0
	MEVINPHOS	2	0	0	2	0	0	0	0	0	0	0	0
	PARATHION	2	0	0	2	0	0	0	0	0	0	0	0
	PHORATE (THIMET)	2	0	0	2	0	0	0	0	0	0	0	0
	PICHLORAM	0	0	0	0	0	0	0	0	0	0	0	0
	PROMETONE	12	0	0	12	0	0	8	0	1	12	0	0
	PROMETRYNE	12	0	0	12	0	0	8	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

		RAW WATER			TREATED WATER			SITE 1			SITE 2		
SCAN	PARAMETER	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
SPECIFIC PESTICIDES	PROPAZINE	12	0	0	12	0	0	8	0	0	12	0	0
	PROPOXUR	2	0	0	2	0	0	0	0	0	0	0	0
	RELDAN	2	0	0	2	0	0	0	0	0	0	0	0
	RONNEL	2	0	0	2	0	0	0	0	0	0	0	0
	SENCOR	12	0	0	12	0	0	8	0	0	12	0	0
	SEVIN (CARBARYL)	2	0	0	2	0	0	0	0	0	0	0	0
	SILVEX	2	0	0	2	0	0	0	0	0	0	0	0
	SIMAZINE	12	0	0	12	0	0	8	0	0	12	0	0
	SUTAN (BUTYLATE)	2	0	0	2	0	0	0	0	0	0	0	0
	TOXAPHENE	0	0	0	0	0	0	0	0	0	0	0	0
*TOTAL SCAN SPECIFIC PESTICIDES		162	0	1	162	0	0	72	0	2	108	0	0
VOLATILES	1,1 DICHLOROETHANE	12	0	0	12	0	0	8	0	0	12	0	0
	1,1 DICHLOROETHYLENE	12	0	0	12	0	0	8	0	0	12	0	0
	1,2 DICHLOROBENZENE	12	0	0	12	0	0	8	0	0	12	0	0
	1,2 DICHLOROETHANE	12	0	0	12	0	0	8	0	0	12	0	0
	1,2 DICHLOROPROPANE	12	0	0	12	0	0	8	0	0	12	0	0
	1,3 DICHLOROBENZENE	12	0	0	12	0	0	8	0	0	12	0	0
	1,4 DICHLOROBENZENE	12	0	0	12	0	0	8	0	0	12	0	0
	111, TRICHLOROETHANE	12	0	0	12	0	0	8	0	0	12	0	0
	112 TRICHLOROETHANE	12	0	0	12	0	0	8	0	0	12	0	0
	1122 TETRA-CHLOROETHANE	12	0	0	12	0	0	8	0	0	12	0	0
	BENZENE	12	0	0	12	0	2	8	0	0	12	0	2
	BROMOFORM	12	0	0	12	0	6	8	0	2	12	0	6
	CARBON TETRACHLORIDE	12	0	0	12	0	0	8	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER # ANALYSED	RAW WATER POSITIVE	RAW WATER TRACE	TREATED WATER # ANALYSED	TREATED WATER POSITIVE	TREATED WATER TRACE	SITE 1 # ANALYSED	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 # ANALYSED	SITE 2 POSITIVE	SITE 2 TRACE
VOLATILES	CHLOROBENZENE	12	0	0	12	0	0	8	0	0	12	0	0
	CHLORODIBROMOMETHANE	12	0	0	12	12	0	8	8	0	12	12	0
	CHLOROFORM	12	0	0	12	12	0	8	8	0	12	12	0
	DICHLOROBROMOMETHANE	12	0	0	12	12	0	8	8	0	12	12	0
	ETHLYENE DIBROMIDE	3	0	0	3	0	0	3	0	0	3	0	0
	ETHYLBENZENE	12	0	1	12	0	4	8	0	0	12	0	1
	M-XYLENE	12	0	1	12	0	2	8	0	0	12	0	2
	METHYLENE CHLORIDE	11	0	0	12	0	0	6	0	0	10	0	0
	O-XYLENE	12	0	1	12	0	1	8	0	0	12	0	1
	P-XYLENE	12	0	0	12	0	0	8	0	0	12	0	0
	TETRACHLOROETHYLENE	12	0	0	12	0	0	8	0	0	12	0	0
	TOLUENE	12	0	1	12	0	3	8	0	0	12	0	1
	TOTAL TRIHALOMETHANES	12	0	0	12	12	0	8	8	0	12	12	0
	TRANS 1,2 DICHLOROETHYLENE	12	0	0	12	0	0	8	0	0	12	0	0
	TRICHLOROETHYLENE	12	0	0	12	0	0	8	0	0	12	0	0
	TRIFLUOROCHLOROTOLUENE	12	0	0	12	0	0	8	0	0	12	0	0
*TOTAL SCAN VOLATILES		338	0	4	339	48	18	225	32	2	337	48	13
*TOTAL GROUP ORGANIC		993	1	22	1029	50	40	599	32	20	899	48	31
TOTAL		1542	397	52	1620	418	88	1270	475	67	1904	753	99

KEY TO TABLES 5 AND 6

A ONTARIO DRINKING WATER OBJECTIVES
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 deg C within 48 hours

2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC

C WORLD HEALTH ORGANIZATION
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample

RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
BACTERIOLOGICAL						
AEROMONAS SP (0=ABSENT)			DET'N LIMIT = N/A	GUIDELINE = 0	(A1)	
MAY	.	0	.	.	.	.
AUG	.	.	.	.	.	0
E. COLI (P/A) (0=ABSENT)			DET'N LIMIT = N/A	GUIDELINE =		
MAY	.	0	.	.	.	.
AUG	.	.	.	.	.	0
FECAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 0	(A1)	
JAN	7	.	.	.	.	.
FEB	0	.	.	.	.	.
MAR	2	.	.	.	.	.
APR	15	.	.	.	.	.
MAY	1	.	.	.	.	.
JUN	0	.	.	.	.	.
JUL	6	.	.	.	.	.
AUG	1	.	.	.	.	.
SEP	!LA	.	.	.	.	.
OCT	6	.	.	.	.	.
NOV	5	.	.	.	.	.
DEC	0	.	.	.	.	.
FECAL COLIFORM (0=ABSENT)			DET'N LIMIT = N/A	GUIDELINE = 0	(A1)	
MAY	.	0	.	.	.	.
AUG	.	.	.	.	.	0
STANDRD PLATE CNT MF (CT/ML)			DET'N LIMIT = 0	GUIDELINE = 500/ML	(A1)	
JAN	225	0	.	0	.	1
FEB	280	20	.	0	.	17
MAR	230	1	.	1	.	1
APR	230	6	.	1	.	12
MAY	131	0	.	2	.	2
JUN	2400 >	0	.	3	.	95
JUL	2400 >	!LA	.	2	.	7
AUG	1300	0	.	!LA	.	4
SEP	2400 >	4	.	.	.	5
OCT	!OP	15	.	.	.	33
NOV	940	2	.	.	.	18
DEC	133	3	.	.	.	21
P/A BOTTLE (0=ABSENT)			DET'N LIMIT = 0	GUIDELINE = 0	(A1*)	
JAN	.	0	.	0	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.	0	.	0	.	0
MAR	.	0	.	0	.	0
APR	.	0	.	0	.	0
MAY	.	1	.	0	.	0
JUN	.	0	.	0	.	0
JUL	.	0	.	0	.	0
AUG	.	0	.	0	.	1
SEP	.	0	.	.	.	0
OCT	.	0	.	.	.	0
NOV	.	0	.	.	.	0
DEC	.	0	.	.	.	0
STAPH AUREUS (0=ABSENT)			DET'N LIMIT = N/A		GUIDELINE = 0 (A1)	
MAY	.	0	.	.	.	.
AUG	.	.	.	.	.	0
COLIFORM (0=ABSENT)			DET'N LIMIT = N/A		GUIDELINE = 0 (A1)	
MAY	.	0	.	.	.	.
AUG	.	.	.	.	.	1
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)	
JAN	200	0	.	0	.	0
FEB	1 A3C	0	.	0	.	0
MAR	89 A3C	0	.	0	.	0
APR	172 A3C	0	.	0	.	0
MAY	19 A3C	0	.	0	.	0
JUN	182 A3C	0	.	0	.	0
JUL	34 A3C	0	.	0	.	0
AUG	100	0	.	0	.	0
SEP	8 A3C	0	.	.	.	2
OCT	24 A3C	0	.	.	.	0
NOV	1000	0	.	.	.	0
DEC	91 A3C	0	.	.	.	0
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = N/A	
JAN	900	0	.	0	.	0
FEB	1850	0	.	0	.	0
MAR	350	0	.	0	.	0
APR	2200	0	.	0	.	0
MAY	520	0	.	0	.	0
JUN	2400 >	0	.	0	.	0
JUL	9100	7	.	0	.	21
AUG	6400	0	.	0	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	1500	0	.	.	.	0
OCT	1400	2	.	.	.	0
NOV	1800	0	.	.	.	0
DEC	700	0	.	.	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (FLD)						
FLD CHLORINE (COMB) (MG/L)			DET'N LIMIT = N/A	GUIDELINE =	N/A	
JAN	.	.	.250	.050	.	.
FEB	.	.100	.100	.150	.200	.
MAR	.	.150	.150	.100	.200	.200
APR	.	.400	.	.	.200	.
MAY	.	.150	.100	.150	.	.
JUN	.	.200	.	.	.090	.300
JUL	.	.620	.	.	.	.
AUG	.	.200	.	.	.	.
SEP	.	.200	.	.	.030	.010
OCT	.	.200	.	.	.300	.
NOV	.	.250	.	.	.100	.100
DEC	.	.200	.	.	.100	.100
FLD CHLORINE FREE (MG/L)			DET'N LIMIT = N/A	GUIDELINE =	N/A	
JAN	.	.800	.	.300	.100	.500
FEB	.	.700	.150	.300	.100	.500
MAR	.	.750	.	.250	.300	.100
APR	.	.600	.	.150	.100	.300
MAY	.	.750	.	.150	.300	.500
JUN	.	.600	.	.050	.100	.
JUL	.	.580	.	.050	.	.
AUG	.	.500	.	.	.100	.100
SEP	.	.610	.	.	.010	.010
OCT	.	.500	.	.	.100	.
NOV	.	.450	.	.	.100	.100
DEC	.	.550	.	.	.	.100
TOTAL CHLORINE (MG/L)			DET'N LIMIT = N/A	GUIDELINE =	N/A	
JAN	.	.800	.250	.350	.100	.500
FEB	.	.800	.250	.450	.300	.500
MAR	.	.900	.150	.350	.500	.300
APR	.	1.000	.150	.350	.300	.300
MAY	.	.900	.100	.300	.300	.500
JUN	.	.800	.100	.250	.100	.300
JUL	.	1.200	.100	.150	.	.
AUG	.	.700	.150	.200	.100	.100
SEP	.	.810	.	.	.400	.200
OCT	.	.700	.	.	.400	.
NOV	.	.700	.	.	.100	.100
DEC	.	.750	.	.	.100	.200
FLD PH (DMSNLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5 (A4)		
JAN	7.400	7.500	7.400	7.500	7.600	7.400

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.	7.600	7.500	7.500	7.600	7.400
MAR	7.900	7.500	7.400	7.400	7.600	7.500
APR	7.500	7.500	7.300	7.400	7.400	7.500
MAY	8.000	7.400	7.500	7.500	7.800	7.800
JUN	7.900	7.700	7.500	7.600	7.600	7.600
JUL	8.200	7.700	7.700	7.700	.	.
AUG	8.200	7.700	7.500	7.500	7.600	7.600
SEP	8.200	7.700	.	.	7.600	7.600
OCT	7.800	7.500	.	.	7.600	7.600
NOV	7.800	7.500	.	.	7.700	7.600
DEC	7.800	7.300	.	.	7.600	7.600
TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	6.000	6.000	16.500	7.500	19.000	17.000
FEB	4.500	4.500	17.500	6.000	19.000	8.000
MAR	3.000	3.500	16.000	5.000	5.000	20.000
APR	7.000	6.500	18.000	6.500	10.000	5.000
MAY	8.000	8.000	18.500	10.000	20.000	8.000
JUN	14.000	14.000	19.500	12.000	25.000	10.000
JUL	18.500	18.500	20.000	16.500	.	.
AUG	20.000	20.000	20.500	19.000	19.000	15.000
SEP	19.000	18.000	.	.	14.000	20.000
OCT	9.000	10.000	.	.	15.000	30.000
NOV	8.500	10.000	.	.	17.000	25.000
DEC	5.000	7.000	.	.	20.000	10.000
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)	
JAN	4.000	.090	.	.	.	.
FEB	1.200	.140	.	.	.320	.190
MAR	4.100	.260	.	.	.	.
APR	12.000	.300	.	.	.	.
MAY	1.500	.400	.	.	.	.
JUN	1.200	.270	.	.	.	.
JUL	1.110	.440	.	.	.	.
AUG	1.700	.550	.	.	.410	.430
SEP	.660	.240	.	.	.750	.680
OCT	1.700	.240	.	.	.170	.180
NOV	.880	.230	.	.	.190	.220
DEC	1.200	.120	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (LAB)						
ALKALINITY (MG/L)			DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)	
JAN	103.700	99.100	99.500	99.500	99.200	99.800
FEB	99.100	94.500	95.800	95.600	95.300	95.700
MAR	100.200	95.000	96.500	96.500	96.300	96.600
APR	103.400	94.700	94.500	97.000	97.700	96.800
MAY	102.700	99.000	100.200	103.000	100.300	100.400
JUN	100.000	95.400	95.600	97.300	94.900	95.600
JUL	99.600	94.800	95.600	98.300	96.100	95.700
AUG	99.000	94.300	93.900	93.900	93.200	93.600
SEP	97.000	93.700	.	.	93.900	93.700
OCT	103.000	100.100	.	.	97.300	100.300
NOV	101.600	97.900	.	.	99.200	98.200
DEC	100.900	96.600	.	.	97.200	97.000
CALCIUM (MG/L)			DET'N LIMIT = .100		GUIDELINE = 100. (F2)	
JAN	38.900	39.600	40.400	40.300	38.900	40.100
FEB	40.800	40.200	41.200	39.900	40.500	39.200
MAR	39.600	40.000	40.600	39.900	39.900	39.600
APR	41.000	40.600	41.800	42.100	42.600	41.500
MAY	42.200	41.900	41.500	41.100	39.900	39.500
JUN	40.400	39.400	39.800	39.600	39.400	39.200
JUL	39.200	39.600	39.000	39.800	39.200	40.200
AUG	39.800	39.800	39.800	40.200	40.400	39.800
SEP	38.600	38.800	.	.	39.400	39.200
OCT	40.400	40.600	.	.	39.400	40.400
NOV	40.600	40.000	.	.	41.200	41.600
DEC	41.000	41.600	.	.	42.000	41.600
CHLORIDE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 250.0 (A3)	
JAN	29.000	30.000	27.500	28.000	28.000	28.500
FEB	24.500	25.500	25.500	25.500	26.500	26.500
MAR	27.000	28.500	28.500	28.000	29.000	28.500
APR	30.500	31.000	29.500	29.500	32.500	31.000
MAY	25.000	26.000	26.500	26.000	26.000	26.000
JUN	27.000	27.500	27.000	28.000	26.500	27.000
JUL	24.000	26.000	26.000	26.000	27.000	26.500
AUG	25.000	27.000	27.000	27.000	27.000	26.500
SEP	23.500	25.000	.	.	25.000	25.000
OCT	26.000	26.000	.	.	26.500	26.000
NOV	24.300	25.300	.	.	25.900	25.800
DEC	24.400	25.300	.	.	25.700	25.900
COLOUR (TCU)			DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)	
JAN	3.000	1.500 <T	1.500 <T	1.000 <T	1.500 <T	1.500 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	2.500 <T	1.000 <T	1.000 <T	1.000 <T	1.500 <T	2.000 <T
MAR	2.500 <T	1.000 <T	1.000 <T	1.000 <T	1.500 <T	1.500 <T
APR	3.500	1.000 <T	2.000 <T	1.000 <T	1.500 <T	1.000 <T
MAY	2.000 <T	2.000 <T	1.000 <T	1.000 <T	1.000 <T	1.000 <T
JUN	3.000	2.500 <T	1.500 <T	1.500 <T	2.000 <T	1.000 <T
JUL	2.000 <T	2.000 <T	1.500 <T	1.000 <T	1.500 <T	2.000 <T
AUG	1.500 <T	.500 <T	1.000 <T	1.000 <T	1.000 <T	1.000 <T
SEP	1.500 <T	.500 <T	.	.	1.000 <T	1.000 <T
OCT	2.000 <T	.500 <T	.	.	1.000 <T	1.000 <T
NOV	2.000 <T	1.500 <T	.	.	1.000 <T	1.500 <T
DEC	2.000 <T	1.000 <T	.	.	1.000 <T	1.000 <T
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1		GUIDELINE = 400. (F2)	
JAN	349	350	350	349	351	350
FEB	331	333	336	336	338	339
MAR	331	335	338	337	339	338
APR	357	360	359	357	374	364
MAY	344	347	347	331	350	348
JUN	347	340	341	345	339	341
JUL	329	331	333	333	338	336
AUG	327	330	331	328	330	329
SEP	316	320	.	.	322	322
OCT	337	338	.	.	333	333
NOV	332	334	.	.	338	335
DEC	330	332	.	.	337	333
FLUORIDE (MG/L)			DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)	
JAN	.140	.860	.880	.850	.870	.840
FEB	.130	.830	.820	.820	.820	.800
MAR	.140	.910	.920	.920	.940	.910
APR	.120	.740	.820	.880	.750	.810
MAY	.140	.810	.940	.890	.920	.940
JUN	.130	.830	.860	.910	.870	.830
JUL	.140	.910	.990	.980	.990	.990
AUG	.150	1.190	1.120	1.040	1.090	1.080
SEP	.120	.780	.	.	.940	.940
OCT	.140	.880	.	.	1.000	.960
NOV	.140	.940	.	.	1.000	1.000
DEC	.120	1.140	.	.	.900	.920
HARDNESS (MG/L)			DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)	
JAN	132.500	134.000	135.500	135.500	132.000	135.000
FEB	137.500	135.500	137.000	134.000	135.500	132.500
MAR	134.500	134.000	136.500	134.500	134.000	134.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
APR	139.000	138.000	139.500	140.000	144.000	140.000
MAY	142.500	140.500	139.500	138.500	135.500	134.000
JUN	135.000	132.000	133.000	133.000	131.000	131.000
JUL	130.000	131.000	130.000	132.000	131.000	133.000
AUG	133.000	134.000	133.000	134.000	135.000	134.000
SEP	132.000	132.000	.	.	133.000	133.000
OCT	136.000	136.000	.	.	133.000	136.000
NOV	136.000	134.000	.	.	138.000	139.000
DEC	137.000	138.000	.	.	139.000	140.000
MAGNESIUM (MG/L)			DET'N LIMIT = .050		GUIDELINE = 30. (F2)	
JAN	8.550	8.550	8.400	8.500	8.450	8.500
FEB	8.650	8.500	8.300	8.400	8.400	8.450
MAR	8.600	8.200	8.600	8.500	8.300	8.500
APR	8.900	8.900	8.500	8.500	9.100	8.900
MAY	9.100	8.800	8.700	8.700	8.600	8.600
JUN	8.200	8.200	8.100	8.300	8.000	8.100
JUL	7.900	7.900	7.900	7.900	8.000	7.900
AUG	8.200	8.300	8.200	8.200	8.200	8.300
SEP	8.600	8.600	.	.	8.400	8.400
OCT	8.600	8.500	.	.	8.500	8.500
NOV	8.500	8.400	.	.	8.600	8.500
DEC	8.500	8.400	.	.	8.300	8.600
SODIUM (MG/L)			DET'N LIMIT = .200		GUIDELINE = 200. (C3)	
JAN	14.800	14.600	13.700	13.300	13.700	14.000
FEB	12.800	12.700	12.600	12.800	12.900	13.200
MAR	14.900	14.500	14.700	14.600	15.200	14.800
APR	15.600	15.200	14.200	14.300	15.900	15.400
MAY	13.200	13.100	12.900	13.100	13.400	13.400
JUN	14.600	13.600	13.600	14.200	13.400	14.000
JUL	11.000	11.400	11.400	11.200	11.600	11.600
AUG	12.400	12.400	12.000	11.600	12.000	11.600
SEP	12.800	12.600	.	.	13.200	13.000
OCT	13.000	12.400	.	.	12.800	12.600
NOV	12.600	12.600	.	.	12.800	12.800
DEC	12.400	12.800	.	.	12.600	12.600
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)	
JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	.008 <T	.004 <T	.008 <T	.006 <T	.106	.006 <T
MAR	.034	.014	.010	.012	.050	.010
APR	.018	.006 <T	.016	.006 <T	.044	.008 <T
MAY	.030	.006 <T	.026	.008 <T	.146	.006 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	.004 <T	.014	.040	.022	.062	.020
JUL	.052	.004 <T	.024	.006 <T	.004 <T	.008 <T
AUG	.022	.008 <T	.018	.008 <T	.014	.010
SEP	.024	.012	.	.	.012	.016
OCT	.008 <T	.002 <T	.	.	.006 <T	BDL
NOV	.024	.004 <T	.	.	.016	.006 <T
DEC	.010	.010	.	.	.160	.006 <T
NITRITE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)	
JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T
MAR	.008	.003 <T	.002 <T	.002 <T	.004 <T	.003 <T
APR	.023	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T
MAY	.008	.002 <T	.004 <T	.003 <T	.002 <T	.003 <T
JUN	.113	.002 <T	.003 <T	.002 <T	.003 <T	.003 <T
JUL	.016	.002 <T	.002 <T	.001 <T	.002 <T	.001 <T
AUG	.037	.002 <T	.002 <T	.001 <T	.001 <T	.001 <T
SEP	.006	.004 <T	.	.	.003 <T	.003 <T
OCT	.020	.001 <T	.	.	.001 <T	BDL
NOV	.004 <T	BDL	.	.	.001 <T	BDL
DEC	.012	.009	.	.	.009	.006
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)	
JAN	.235	.230	.225	.235	.225	.250
FEB	.395	.400	.400	.400	.625	.425
MAR	.450	.450	.480	.435	.495	.460
APR	.460	.410	.455	.435	.640	.440
MAY	.380	.370	.420	.370	.615	.365
JUN	.570	.365	.400	.385	.485	.370
JUL	.285	.250	.285	.255	.305	.295
AUG	.370	.280	.335	.270	.280	.280
SEP	.235	.225	.	.	.240	.240
OCT	.490	.455	.	.	.385	.400
NOV	.420	.420	.	.	.460	.440
DEC	.915	.585	.	.	BDL	BDL
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020		GUIDELINE =	N/A
JAN	.190	.130	.150	.080 <T	.120	.150
FEB	.180	.150	.200	.120	.220	.120
MAR	.200	.100	.190	.150	.130	.140
APR	.140	.060 <T	.080 <T	.060 <T	.220	.080 <T
MAY	.200	.170	.180	.140	.320	.130
JUN	.300	.180	.200	.190	.290	.190
JUL	.180	.210	.190	.260	.220	.200

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
AUG	.130	.110	.120	.110	.130	.120
SEP	.190	.160	.	.	.170	.160
OCT	.220	.160	.	.	.170	.180
NOV	.200	.180	.	.	.170	.170
DEC	.230	.190	.	.	.420	.190
PH (DMSNLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)	
JAN	8.340	8.210	8.210	8.170	8.210	8.200
FEB	8.260	7.980	8.030	8.030	8.100	8.060
MAR	8.230	8.010	8.090	8.070	8.060	8.070
APR	8.290	8.130	8.020	8.140	8.090	8.100
MAY	8.390	8.350	8.340	8.340	8.320	8.320
JUN	8.380	8.150	8.130	8.140	8.100	8.150
JUL	8.350	8.340	8.320	8.350	8.320	8.340
AUG	8.330	8.050	8.100	8.120	8.100	8.130
SEP	8.330	8.160	.	.	8.170	8.160
OCT	8.210	8.140	.	.	8.150	8.170
NOV	8.310	8.210	.	.	8.240	8.300
DEC	8.270	8.150	.	.	8.100	8.130
PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = .5UG/L		GUIDELINE = N/A	
JAN	BDL	BDL	.	.	.	.
FEB	.004	.002	.	.	.	.
MAR	.002	.003	.	.	.	.
APR	.007	.002 <T	.	.	.	.
MAY	.000 <T	.002 <T	.	.	.	.
JUN	.010	.003	.	.	.	.
JUL	.008	.005	.	.	.	.
AUG	.011	.004	.	.	.	.
SEP	.002 <T	.001 <T	.	.	.	.
OCT	.003	.002	.	.	.	.
NOV	.001 <T	.001 <T	.	.	.	.
DEC	.000 <T	.002	.	.	.	.
PHOSPHORUS TTL-UNFIL (MG/L)			DET'N LIMIT = .002		GUIDELINE = .40 (F2)	
JAN	.011	.004 <T	.	.	.	.
FEB	.010	.004 <T	.	.	.	.
MAR	.019	.003	.	.	.	.
APR	.018	BDL	.	.	.	.
MAY	BDL	BDL	.	.	.	.
JUN	.016	.009 <T	.	.	.	.
JUL	.017	.014	.	.	.	.
AUG	.006 RVU	.002 RVU	.	.	.	.
SEP	.005 <T	BDL	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
OCT	.008 <T	.005 <T	.	.	.	.
NOV	.006 <T	.006 <T	.	.	.	.
DEC	.012	.009 <T	.	.	.	.
RESIDUE (TOTAL) (MG/L)		DET'N LIMIT = 1.		GUIDELINE = 500. (A3)		
JAN	227 CRO	228 CRO	228 CRO	227 CRO	228 CRO	228 CRO
FEB	215 CRO	216 CRO	218 CRO	218 CRO	220 CRO	220 CRO
MAR	215 CRO	218 CRO	220 CRO	219 CRO	220 CRO	220 CRO
APR	225	234 CRO	233 CRO	232 CRO	243 CRO	237 CRO
MAY	224 CRO	226 CRO	226 CRO	215 CRO	228 CRO	226 CRO
JUN	225 CRO	221 CRO	221 CRO	224 CRO	220 CRO	221 CRO
JUL	214 CRO	215 CRO	216 CRO	216 CRO	220 CRO	218 CRO
AUG	213 CRO	215 CRO	215 CRO	213 CRO	215 CRO	214 CRO
SEP	205 CRO	208 CRO	.	.	209 CRO	209 CRO
OCT	219 CRO	220 CRO	.	.	216 CRO	216 CRO
NOV	216 CRO	217 CRO	.	.	220 CRO	218 CRO
DEC	215 CRO	216 CRO	.	.	219 CRO	216 CRO
TURBIDITY (FTU)		DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)		
JAN	3.600	.190	.150	.290	.080 <T	.130
FEB	.810	.130	.130	.150	.470	.200
MAR	2.900	.400	.300	.300	.700	.330
APR	10.500	.400	.200	.080	.440	.310
MAY	1.540	.530	.300	.600	.520	.480
JUN	.480	.320	.410	.340	.680	.420
JUL	.740	.260	.350	.310	.680	.340
AUG	.480	.280	.270	.350	.190	.260
SEP	.640	.210	.	.	.380	.600
OCT	1.090	.120	.	.	.130	.120
NOV	.430	.160	.	.	.180	.190
DEC	.640	.130	.	.	.330	.220

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
METALS						
ALUMINUM (MG/L)			DET'N LIMIT = .004		GUIDELINE = .10 (A4)	
JAN	.095	.110	.098	.093	.110	.099
FEB	.016	.072	.065	.066	.081	!BT
MAR	.043	.045	.057	.058	.100	.064
APR	.260	.091	.022	.051	.059	.060
MAY	.020	.018	.041	.027	.052	.024
JUN	BDL	BDL	.022	.011	.036	.014
JUL	.010	.017	.059	.061	.084	.094
AUG	.037	.140	.120	.120	.130	.130
SEP	.027	.037	.	.	.120	.095
OCT	.015	BDL	.	.	.035	.016
NOV	.012	.004	.	.	.027	.013
DEC	.010	BDL	.	.	.009	BDL
ARSENIC (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .050 (A1)	
APR	BDL	BDL	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	BDL	BDL	BDL	BDL	BDL	BDL
AUG	BDL	BDL	BDL	BDL	BDL	BDL
SEP	BDL	BDL	.	.	BDL	BDL
OCT	BDL	.001	.	.	BDL	BDL
NOV	BDL	BDL	.	.	BDL	BDL
DEC	BDL	BDL	.	.	BDL	BDL
BARIUM (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)	
JAN	.023	.023	.022	.022	.023	.022
FEB	.018	.017	.018	.018	.019	!BT
MAR	.022	.022	.022	.021	.024	.021
APR	.022	.020	.022	.021	.021	.020
MAY	.020	.021	.020	.020	.021	.021
JUN	.022	.021	.023	.021	.023	.022
JUL	.022	.022	.023	.023	.025	.024
AUG	.021	.021	.022	.021	.020	.021
SEP	.020	.020	.	.	.021	.020
OCT	.019	.018	.	.	.019	.019
NOV	.016	.016	.	.	.017	.016
DEC	.012	.018	.	.	.019	.018
BORON (MG/L)			DET'N LIMIT = 0.01		GUIDELINE = 5.000 (A1)	
JAN	.020	.020	.020	.020	.020	.020
FEB	.030	.030	.030	.030	.030	!BT
MAR	.030	.030	.040	.040	.030	.030

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	.020	.030	.040	.030	.040	.030
MAY	.010 <T	.020 <T	.010 <T	BDL	.020 <T	.010 <T
JUN	.030 <T	.030 <T	.040 <T	.040 <T	.040 <T	.030 <T
JUL	.010 <T	.010 <T	.010 <T	BDL	.010 <T	BDL
AUG	.030 <T	.030 <T	.030 <T	.030 <T	.030 <T	.030 <T
SEP	.020 <T	.040 <T	.	.	.030 <T	.030 <T
OCT	.020 <T	.020 <T	.	.	.030 <T	.030 <T
NOV	.040 <T	.040 <T	.	.	.040 <T	.040
DEC	.039 <T	.037 <T	.	.	.038 <T	.031 <T
CADMIUM (UG/L)			DET'N LIMIT = 0.300		GUIDELINE = 5.000 (A1)	
JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	BDL	BDL	BDL	BDL	BDL	!BT
MAR	BDL	BDL	BDL	BDL	BDL	BDL
APR	BDL	BDL	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	BDL	BDL	BDL	.700	BDL	BDL
AUG	BDL	BDL	BDL	BDL	BDL	BDL
SEP	BDL	BDL	.	.	BDL	BDL
OCT	BDL	BDL	.	.	BDL	BDL
NOV	BDL	BDL	.	.	BDL	BDL
DEC	BDL	BDL	.	.	BDL	BDL
COBALT (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.0 (H)	
JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	BDL	BDL	BDL	BDL	BDL	!BT
MAR	BDL	BDL	BDL	BDL	BDL	BDL
APR	BDL	.001	BDL	BDL	.001	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	.001	BDL	BDL	BDL	.002	.001
JUL	BDL	BDL	BDL	BDL	BDL	BDL
AUG	BDL	BDL	BDL	BDL	BDL	BDL
SEP	BDL	BDL	.	.	BDL	BDL
OCT	BDL	BDL	.	.	BDL	BDL
NOV	BDL	BDL	.	.	BDL	BDL
DEC	BDL	BDL	.	.	BDL	BDL
CHROMIUM (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .05 (A1)	
JAN	.001	BDL	BDL	BDL	.001	.002
FEB	BDL	BDL	.001	BDL	.001	!BT
MAR	.001	BDL	BDL	BDL	BDL	BDL
APR	.001	.001	.001	BDL	BDL	.001
MAY	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	.001	.001	.001	.001	.001	.001
JUL	.001	BDL	.001	.001	.002	.001
AUG	BDL	.001	BDL	BDL	BDL	BDL
SEP	BDL	BDL	.	.	BDL	BDL
OCT	.002	.002	.	.	.002	.002
NOV	.002	.002	.	.	.002	.001
DEC	.001	.002	.	.	.002	.002
COPPER (MG/L)			DET'N LIMIT = .001		GUIDELINE = 1.0 (A3)	
JAN	.002	.001	.021	.003	.022	.003
FEB	BDL	BDL	.014	BDL	.020	!BT
MAR	.001	.001	.017	.002	.071	.002
APR	.002	.001	.031	.004	.046	.003
MAY	.001	.001	.020	.002	.039	.003
JUN	.002	.002	.025	.004	.060	.004
JUL	.002	.002	.034	.008	.086	.019
AUG	.001	.002	.036	.005	.019	.005
SEP	.002	.001	.	.	.025	.009
OCT	.001	BDL	.	.	.044	.009
NOV	BDL	BDL	.	.	.076	.009
DEC	.001	.001	.	.	.069	.012
IRON (MG/L)			DET'N LIMIT = .002		GUIDELINE = .300 (A3)	
JAN	.088	.001	.004	.003	.003	.003
FEB	.032	BDL	BDL	.001	.007	!BT
MAR	.077	.079	BDL	.001	.015	.012
APR	.310	.002	.002	.003	.011	.011
MAY	.028	.007	.005	.006	.008	.006
JUN	.018	.005	.002	.004	.015	.010
JUL	BDL	.031	.013	.003	.015	.011
AUG	.036	.011	BDL	.071	.016	.002
SEP	.010	BDL	.	.	.043	.036
OCT	.015	.004	.	.	.009	.006
NOV	.011	BDL	.	.	.004	.005
DEC	.014	.007	.	.	.012	.008
MERCURY (UG/L)			DET'N LIMIT = 0.010		GUIDELINE = 1.000 (A1)	
JAN	BDL	.030	.	.010	.	.010
FEB	.010	.020	.	.010	.	.020
MAR	.010	.010	.	.020	.	.010
APR	.620	.620	.	BDL	.	.010
MAY	.520	.430	.	.010	.	.010
JUN	.800	.900	.	.020	.	.010
JUL	.030	.040	.	.100	.	.010

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
AUG	.040	.060	.	.020	.	.010
SEP	.090	.070	.	.	.	BDL
OCT	.060	.060	.	.	.	.010
NOV	BDL	.080	.	.	.	.010
DEC	BDL	BDL	.	.	.	.020
MANGANESE (MG/L)			DET'N LIMIT = .001		GUIDELINE = .050 (A3)	
JAN	.004	BDL	BDL	BDL	.001	BDL
FEB	.002	BDL	BDL	BDL	.001	!BT
MAR	.005	.005	BDL	BDL	.001	.001
APR	.013	BDL	.001	BDL	.002	.001
MAY	.003	.001	.001	.001	.001	.001
JUN	.004	.001	.001	.002	.003	.002
JUL	.003	.001	.001	.001	.003	.002
AUG	.002	.001	.001	.001	.001	.001
SEP	.001	BDL	.	.	.004	.002
OCT	.004	.001	.	.	.002	.002
NOV	.003	.001	.	.	.003	.002
DEC	.002	.001	.	.	.002	.001
MOLYBDENUM (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .50 (H)	
JAN	.001	.001	.001	.001	.001	.001
FEB	.001	.001	.001	.001	.001	!BT
MAR	BDL	BDL	.001	.001	.001	.001
APR	BDL	.001	.001	.001	.001	.001
MAY	.001	.001	.001	.001	.001	.001
JUN	.001	.001	.001	.001	.001	.001
JUL	.001	.001	.001	.001	.001	.001
AUG	.001	.001	BDL	BDL	.001	.001
SEP	.001	.001	.	.	.001	.001
OCT	BDL	BDL	.	.	BDL	.002
NOV	.001	.001	.	.	.001	.001
DEC	.001	.002	.	.	.001	.002
NICKEL (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .05 (F3)	
JAN	BDL	BDL	.002	BDL	.004	BDL
FEB	BDL	BDL	.005	BDL	BDL	!BT
MAR	BDL	BDL	.053	BDL	.002	BDL
APR	.002	.002	.091	.002	.230	BDL
MAY	BDL	BDL	.008	BDL	.021	BDL
JUN	.002	.002	.003	BDL	.031	BDL
JUL	BDL	BDL	.018	BDL	.011	BDL
AUG	BDL	BDL	.120	BDL	BDL	.002
SEP	BDL	BDL	.	.	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
OCT	.002	.002	.	.	.002	.002
NOV	.002	.002	.	.	.004	.002
DEC	.001	.002	.	.	.018	.002
LEAD (MG/L)			DET'N LIMIT = 0.003		GUIDELINE = .050 (A1)	
JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	BDL	BDL	BDL	BDL	BDL	!BT
MAR	.005	BDL	.004	.003	.054	BDL
APR	BDL	.007	BDL	BDL	.027	.005
MAY	BDL	BDL	BDL	BDL	.007	BDL
JUN	BDL	BDL	BDL	BDL	.013	.005
JUL	BDL	BDL	BDL	BDL	BDL	BDL
AUG	BDL	BDL	BDL	BDL	.006	.005
SEP	BDL	BDL	.	.	BDL	BDL
OCT	BDL	BDL	.	.	.003	BDL
NOV	BDL	BDL	.	.	BDL	BDL
DEC	BDL	BDL	.	.	.005	BDL
STRONTIUM (MG/L)			DET'N LIMIT = .001		GUIDELINE = 2.00 (H)	
JAN	.180	.190	.180	.180	.180	.190
FEB	.150	.150	.150	.150	.160	!BT
MAR	.180	.180	.180	.180	.180	.180
APR	.170	.170	.190	.190	.170	.170
MAY	.170	.170	.160	.170	.170	.170
JUN	.190	.180	.180	.180	.180	.180
JUL	.180	.170	.180	.180	.180	.180
AUG	.170	.170	.170	.170	.170	.170
SEP	.160	.170	.	.	.170	.160
OCT	.160	.160	.	.	.160	.160
NOV	.140	.140	.	.	.140	.140
DEC	.110	.160	.	.	.170	.170
URANIUM (UG/L)			DET'N LIMIT = .02		GUIDELINE = 20. (A2)	
JAN	.400	.400	.420	.420	.400	.390
FEB	.440	.430	.420	.430	.430	!BT
MAR	.350	.330	.370	.400	.410	.310
APR	.320	.260	.250	.320	.270	.290
MAY	.360 <T	.400 <T	.380 <T	.370 <T	.390 <T	.380 <T
JUN	.290	.340	.330	.360	.390	.370
JUL	.300	.300	.310	.320	.330	.330
AUG	.340	.330	.320	.330	.340	.320
SEP	.380	.400	.	.	.460	.480
OCT	.380	.400	.	.	.390	.390
NOV	.410	.430	.	.	.420	.450

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
DEC	.360	.420	.	.	.410	.410
VANADIUM (MG/L)			DET'N LIMIT = .001		GUIDELINE = .10 (H)	
JAN	.001	BDL	BDL	BDL	BDL	BDL
FEB	BDL	BDL	.001	BDL	BDL	!BT
MAR	BDL	BDL	BDL	BDL	BDL	BDL
APR	.001	.001	BDL	BDL	BDL	.001
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	BDL	BDL	.001	BDL	BDL	BDL
AUG	BDL	BDL	BDL	BDL	BDL	BDL
SEP	BDL	BDL	.	.	BDL	BDL
OCT	.001	.001	.	.	BDL	BDL
NOV	BDL	BDL	.	.	BDL	BDL
DEC	BDL	BDL	.	.	BDL	BDL
ZINC (MG/L)			DET'N LIMIT = .001		GUIDELINE = 5.00 (A3)	
JAN	.001	BDL	.001	BDL	.019	.030
FEB	.011	.004	.004	.002	.017	!BT
MAR	.002	.002	.007	.011	.048	.003
APR	.004	.001	.006	.001	.033	.002
MAY	.001	BDL	.003	.001	.020	.002
JUN	.006	.003	.005	.006	.038	.004
JUL	BDL	BDL	BDL	BDL	BDL	BDL
AUG	.003	.001	.004	.001	.007	.007
SEP	BDL	BDL	.	.	.002	BDL
OCT	.004	BDL	.	.	.009	.003
NOV	BDL	.007	.	.	.047	.006
DEC	BDL	BDL	.	.	.024	.004

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHLOROAROMATICS						
123 TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 10000. (I)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	!LA	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	20.000 <T	17.000 <T	.	20.000 <T	.	12.000 <T
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
1235 T-CHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 10000. (I)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	!LA	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	5.000 <T	.	BDL	.	4.000 <T
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
124 TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 10000. (I)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	!LA	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	9.000 <T	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
HEXACHLOROETHANE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 1900. (D4)		
JAN	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	!LA	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	3.000 <T	.	1.000 <T	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
PENTACHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 74000. (D4)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	!LA	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	1.000 <T	1.000 <T	.	BDL	.	1.000 <T
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
236 TRICHLOROTOLUENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	!LA	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	6.000 <T	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
245 TRICHLOROTOLUENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	!LA	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
APR	BDL	10.000 <T	.	9.000 <T	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
METALS						
ARSENIC (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .050 (A1)	
JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	BDL	BDL	BDL	BDL	BDL	!BT
MAR	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
PESTICIDES & PCB						
ALPHA BHC (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 700. (G)		
JAN	2.000 <T	2.000 <T	.	2.000 <T	.	2.000 <T
FEB	!LA	2.000 <T	.	3.000 <T	.	2.000 <T
MAR	BDL	1.000 <T	.	3.000 <T	.	4.000 <T
APR	2.000 <T	1.000 <T	.	2.000 <T	.	1.000 <T
MAY	BDL	1.000 <T	.	BDL	.	BDL
JUN	2.000 <T	2.000 <T	.	2.000 <T	.	1.000 <T
JUL	2.000 <T	1.000 <T	.	BDL	.	4.000 <T
AUG	2.000 <T	2.000 <T	.	3.000 <T	.	2.000 <T
SEP	1.000 <T	BDL	.	.	.	1.000 <T
OCT	1.000 <T	BDL	.	.	.	2.000 <T
NOV	2.000 <T	2.000 <T	.	.	.	1.000 <T
DEC	3.000 <T	4.000 <T	.	.	.	3.000 <T
BETA BHC (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 300. (G)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	!LA	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	1.000 <T	.	BDL
MAY	BDL	1.000 <T	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
LINDANE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 4000.0 (A1)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	!LA	BDL	.	1.000 <T	.	BDL
MAR	BDL	BDL	.	1.000 <T	.	BDL
APR	1.000 <T	BDL	.	1.000 <T	.	1.000 <T
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	1.000 <T	.	BDL	.	2.000 <T
AUG	BDL	1.000 <T	.	2.000 <T	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	1.000 <T
NOV	BDL	BDL	.	.	.	BDL
DEC	1.000 <T	1.000 <T	.	.	.	1.000 <T
ATRATONE (NG/L)		DET'N LIMIT = 50.		GUIDELINE =	N/A	
JAN	BDL	BDL	.	140.000 <T	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
PHENOLICS						
PHENOL (UG/L)			DET'N LIMIT = 0.2		GUIDELINE = 2.00 (A3)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	.	.	.
MAR	.200 <T	.200 <T	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	.800	.600	.	.	.	.
JUN	.800 <T	1.000	.	.	.	.
JUL	.200 <T	.400 <T	.	.	.	.
AUG	BDL	BDL	.	.	.	.
SEP	BDL	BDL	.	.	.	.
OCT	BDL	BDL	.	.	.	.
NOV	BDL	BDL	.	.	.	.
DEC	.400 <T	BDL	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
SPECIFIC PESTICIDES						
ATRAZINE (NG/L)			DET'N LIMIT = 50.00		GUIDELINE = 60000. (B3)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	80.000 <T	BDL	.	60.000 <T	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
PROMETONE (NG/L)			DET'N LIMIT = 50.00		GUIDELINE = 52500. (D3)	
JAN	BDL	BDL	.	80.000 <T	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
VOLATILES						
BENZENE (UG/L)			DET'N LIMIT = 0	GUIDELINE = 5.0 (D1)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	.150 <T	.	.	.	.100 <T
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	.050 <T	.	.	.	.050 <T
DEC	BDL	BDL	.	.	.	BDL
TOLUENE (UG/L)			DET'N LIMIT = 0	GUIDELINE = 100.0 (G)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.400 <T	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	.200 <T	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	.150 <T	.200 <T	.	.	.	.150 <T
DEC	BDL	BDL	.	.	.	BDL
ETHYLBENZENE (UG/L)			DET'N LIMIT = 0	GUIDELINE = 3400. (D3)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	.200 <T	.	BDL	.	BDL
SEP	BDL	.150 <T	.	.	.	BDL
OCT	BDL	.200 <T	.	.	.	BDL
NOV	.050 <T	.100 <T	.	.	.	.050 <T
DEC	BDL	BDL	.	.	.	BDL
P-XYLENE (UG/L)			DET'N LIMIT = 0	GUIDELINE = 620. (G)		
JAN	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	.000 RMP	.	.	.	.000 RMP
OCT	BDL	BDL	.	.	.	BDL
NOV	.000 RMP	.000 RMP	.	.	.	.000 RMP
DEC	BDL	BDL	.	.	.	BDL
M-XYLENE (UG/L)			DET'N LIMIT = 0	GUIDELINE = 620. (G)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	.200 <T	.	.	.	.200 <T
OCT	BDL	BDL	.	.	.	BDL
NOV	.100 <T	.100 <T	.	.	.	.100 <T
DEC	BDL	BDL	.	.	.	BDL
O-XYLENE (UG/L)			DET'N LIMIT = 0	GUIDELINE = 620. (G)		
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	.100 <T	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	.050 <T	BDL	.	.	.	.050 <T
DEC	BDL	BDL	.	.	.	BDL
1,1 DICHLOROETHYLENE (UG/L)			DET'N LIMIT = 0	GUIDELINE = 7.0 (D1)		
JAN	.000 APS	.000 APS	.	.000 APS	.	.000 APS
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	.	.	.	BDL
DEC	BDL	BDL	.	.	.	BDL
CHLOROFORM (UG/L)			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)	
JAN	BDL	12.000	.	11.000	.	12.000
FEB	BDL	14.000	.	11.000	.	14.000
MAR	BDL	16.000	.	16.000	.	16.000
APR	BDL	16.000	.	18.000	.	23.000
MAY	BDL	12.900	.	12.400	.	14.700
JUN	BDL	15.000	.	14.000	.	13.000
JUL	BDL	18.000	.	17.000	.	15.000
AUG	BDL	27.000	.	26.800	.	24.400
SEP	BDL	25.900	.	.	.	22.300
OCT	BDL	14.800	.	.	.	13.900
NOV	BDL	17.000	.	.	.	15.800
DEC	BDL	15.200	.	.	.	14.000
DICHLOROBROMOMETHANE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)	
JAN	BDL	10.000	.	8.000	.	9.000
FEB	BDL	12.000	.	9.000	.	11.000
MAR	BDL	12.000	.	12.000	.	12.000
APR	BDL	11.000	.	11.000	.	13.000
MAY	BDL	9.600	.	9.100	.	9.900
JUN	BDL	10.000	.	9.000	.	9.000
JUL	BDL	12.000	.	11.000	.	10.000
AUG	BDL	14.400	.	13.500	.	12.800
SEP	BDL	14.000	.	.	.	12.800
OCT	BDL	12.900	.	.	.	10.200
NOV	BDL	13.200	.	.	.	11.800
DEC	BDL	12.800	.	.	.	12.100
CHLORODIBROMOMETHANE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)	
JAN	BDL	7.000	.	6.000	.	6.000
FEB	BDL	7.000	.	5.000	.	6.000
MAR	BDL	6.000	.	6.000	.	6.000
APR	BDL	4.000	.	4.000	.	5.000
MAY	BDL	4.900	.	4.700	.	5.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	BDL	7.000	.	8.000	.	7.000
JUL	BDL	7.000	.	7.000	.	6.000
AUG	BDL	6.600	.	5.900	.	5.800
SEP	BDL	6.300	.	.	.	5.900
OCT	BDL	7.100	.	.	.	7.000
NOV	BDL	6.600	.	.	.	5.700
DEC	BDL	8.800	.	.	.	7.800
BROMOFORM (UG/L)			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	.600 <T	.	.600 <T	.	.600 <T
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.400 <T	.	BDL	.	.200 <T
AUG	BDL	.200 <T	.	.200 <T	.	.200 <T
SEP	BDL	.400 <T	.	.	.	.400 <T
OCT	BDL	.600 <T	.	.	.	.600 <T
NOV	BDL	.400 <T	.	.	.	.400 <T
DEC	BDL	BDL	.	.	.	BDL
TOTL TRIHALOMETHANES (UG/L)			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1)	
JAN	BDL	29.000	.	25.000	.	27.000
FEB	BDL	35.000	.	25.000	.	31.000
MAR	BDL	34.000	.	34.000	.	34.000
APR	BDL	31.000	.	33.000	.	41.000
MAY	BDL	28.000	.	26.800	.	30.200
JUN	BDL	32.000	.	31.000	.	29.000
JUL	BDL	37.400	.	35.000	.	31.200
AUG	BDL	48.200	.	46.400	.	43.200
SEP	BDL	46.600	.	.	.	41.400
OCT	BDL	35.400	.	.	.	31.700
NOV	BDL	37.200	.	.	.	33.700
DEC	BDL	36.800	.	.	.	33.900

OFFLINE...

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN	PARAMETER	ANALYSED	DETECTION LIMIT	GUIDELINE		
CHEMISTRY (LAB)	CYANIDE	44	0.001	.200	(A1)	MG/L
METALS	BERYLLIUM	64	0.001	.0002	(H)	MG/L
	CYANIDE	44	0.001	.200	(A1)	MG/L
	SELENIUM	64	0.001	.010	(A1)	MG/L
CHLOROAROMATICS	HEXACHLOROBUTADIENE	44	1.000	450.	(D4)	NG/L
	1234 T-CHLOROBENZENE	44	1.000	10000.	(I)	NG/L
	1245 T-CHLOROBENZENE	44	1.000	38000.	(D4)	NG/L
	135 TRICHLOROBENZENE	44	5.000	10000.	(D4)	NG/L
	OCTACHLOROSTYRENE	44	1.000		N/A	NG/L
	26A TRICHLOROTOLUENE	44	5.000		N/A	NG/L
CHLOROPHENOLS	234 TRICHLOROPHENOL	4	50.		N/A	NG/L
	2345 T-CHLOROPHENOL	4	50.		N/A	NG/L
	2356 T-CHLOROPHENOL	4	50.		N/A	NG/L
	245-TRICHLOROPHENOL	4	50.	2600000	(D4)	NG/L
	246-TRICHLOROPHENOL	4	50.	10000.	(C1)	NG/L
	PENTACHLOROPHENOL	4	50.	10000.	(C1)	NG/L
PAH	PHENANTHRENE	8	0		N/A	NG/L
	ANTHRACENE	8	0		N/A	NG/L
	FLUORANTHENE	8	0	42000	(D4)	NG/L
	PYRENE	8	0		N/A	NG/L
	BENZO(A)ANTHRACENE	8	0		N/A	NG/L
	CHRYSENE	8	0		N/A	NG/L
	DIMETH. BENZ(A)ANTHR	8	0		N/A	NG/L
	BENZO(E)PYRENE	8	0		N/A	NG/L
	BENZO(J) FLUORANTHEN	8	N/A		N/A	NG/L
	BENZO(B) FLUORANTHEN	8	0		N/A	NG/L
	PERYLENE	8	0		N/A	NG/L
	BENZO(K) FLUORANTHEN	8	N/A		N/A	NG/L
	BENZO (A) PYRENE	8	0	10	(B1)	NG/L
	BENZO(G,H,I) PERYLEN	8	0		N/A	NG/L
	DIBENZO(A,H) ANTHRAC	8	0		N/A	NG/L
	INDENO(1,2,3-C,D) PY	8	0		N/A	NG/L
	BENZO(B) CHRYSENE	8	0		N/A	NG/L
	ANTHANTHRENE	8	N/A		N/A	NG/L
	CORONENE	8	0		N/A	NG/L
PESTICIDES & PCB	ALDRIN	44	1.000	700.0	(A1)	NG/L
	ALPHA CHLORDANE	44	2.000	7000.0	(A1)	NG/L
	GAMMA CHLORDANE	44	2.000	7000.0	(A1)	NG/L
	DIELDRIN	44	2.000	700.0	(A1)	NG/L
	METHOXYCHLOR	44	5.000	100000.	(A1)	NG/L
	THIODAN I	44	2.000	74000.	(D4)	NG/L
	THIODAN II	44	4.000	74000.	(D4)	NG/L
	ENDRIN	44	4.000	200.0	(A1)	NG/L
	THIODAN SULPHATE	44	4.000		N/A	NG/L
	HEPTACHLOR EPOXIDE	44	1.000	3000.0	(A1)	NG/L
	HEPTACHLOR	44	1.000	3000.0	(A1)	NG/L

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN	PARAMETER	ANALYSED	DETECTION LIMIT	GUIDELINE	
PESTICIDES & PCB	MIREX	44	5.000	N/A	NG/L
	OXYCHLORDANE	44	2.000	N/A	NG/L
	OPDDT	44	5.000	30000. (A1)	NG/L
	PCB	44	20.000	3000. (A2)	NG/L
	PP-DDD	44	5.000	N/A	NG/L
	PPDDE	44	1.000	30000. (A1)	NG/L
	PPDDT	44	5.000	30000. (A1)	NG/L
	ALACHLOR	44	500.	35000. (D2)	NG/L
	ETHYLENE DIBROMIDE	44	0	50.0 (G)	UG/L
	HCB	44	1.000	10.0 (C1)	NG/L
SPECIFIC PESTICIDES	TOXAPHENE	44	N/A	5000. (A1)	NG/L
	AMETRYNE	44	50.00	300000.(D3)	NG/L
	BLADEX	44	100.00	10000. (B3)	NG/L
	PROPAZINE	44	50.00	16000. (D2)	NG/L
	PROMETRYNE	44	50.00	1000. (B3)	NG/L
	SENCOR	44	100.00	80000. (B2)	NG/L
	SIMAZINE	44	50.00	10000. (B3)	NG/L
	2,4,5-T	4	50.00	35000. (D2)	NG/L
	2,4-D	4	100.00	100000.(A1)	NG/L
	24DCHLRPHENOXYBUTYRC	4	200.00	18000. (B3)	NG/L
	2,4-DP	4	100.00	N/A	NG/L
	DICAMBA	4	100.00	87000. (B3)	NG/L
	PICHLORAM	4	100.00	2450000(D3)	NG/L
	SILVEX	4	50.00	10000. (A1)	NG/L
	DIAZINON	4	20.	14000. (A1)	NG/L
	DICHLOROVOS	4	20.	N/A	NG/L
	DURSBAN	4	20.	N/A	NG/L
	ETHION	4	20.	35000. (G)	NG/L
	GUTHION	4	N/A	N/A	NG/L
	MALATHION	4	20.	160000. (G)	NG/L
	MEVINPHOS	4	20.	N/A	NG/L
	METHYL PARATHION	4	50.	7000. (B3)	NG/L
	METHYLTRITHION	4	20.	N/A	NG/L
	PARATHION	4	20.	35000. (B1)	NG/L
	PHORATE	4	20.	35.0 (D2)	NG/L
	RELDAN	4	20.	N/A	NG/L
	RONNEL	4	20.	N/A	NG/L
	AMINOCARB	4	N/A	N/A	NG/L
	BENOMYL	4	N/A	N/A	NG/L
	BUX	4	2000.	N/A	NG/L
	CARBOFURAN	4	2000.	18000. (D3)	NG/L
	CIPC	4	2000.	350000. (G)	NG/L
	DIALLATE	4	2000.	30000. (H)	NG/L
	EPTAM	4	2000.	N/A	NG/L
	IPC	4	2000.	N/A	NG/L
	PROPOXUR	4	2000.	90000. (G)	NG/L
	SEVIN	4	200.	70000. (A1)	NG/L
	SUTAN	4	2000.	245000.(D3)	NG/L
	METOLACHLOR	44	500.	50000. (B3)	NG/L
VOLATILES	DICHLOROMETHANE	44	0	1750. (D3)	UG/L

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM BURLINGTON WATER TREATMENT PLANT 1987

COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN	PARAMETER	ANALYSED	DETECTION LIMIT	GUIDELINE	
VOLATILES	T1,2DICHLOROETHYLENE	44	0	350. (D3)	UG/L
	1,1 DICHLOROETHANE	44	0	N/A	UG/L
	111, TRICHLOROETHANE	44	0	200. (D1)	UG/L
	1,2 DICHLOROETHANE	44	0	5.0 (D1)	UG/L
	CARBON TETRACHLORIDE	44	0	5.0 (D1)	UG/L
	1,2 DICHLOROPROPANE	44	0	10.0 (G)	UG/L
	TRICHLOROETHYLENE	44	0	5.0 (D1)	UG/L
	112 TRICHLOROETHANE	44	0	.60 (D4)	UG/L
	T-CHLOROETHYLENE	44	0	10.0 (C2)	UG/L
	1122 T-CHLOROETHANE	44	0	0.17 (D4)	UG/L
	CHLOROBENZENE	44	0	1510. (D3)	UG/L
	1,4 DICHLOROBENZENE	44	0	75.0 (D1)	UG/L
	1,3 DICHLOROBENZENE	44	0	130. (G)	UG/L
	1,2 DICHLOROBENZENE	44	0	130. (G)	UG/L
	TRIFLUOROCHLOROTOLUE	44	0	N/A	UG/L
	ETHYLENE DIBROMIDE	44	0	50.0 (G)	UG/L

Appendix A

DRINKING WATER SURVEILLANCE PROGRAM

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality,
- a flagging mechanism for 'Objective' exceedence,
- a definition of contaminant levels and trends,
- a comprehensive background for remedial action,
- a framework for assessment of new contaminants,
- and an indication of treatment efficiency of plant processes.

Program

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario; currently 44 plants are being monitored. Water supply locations have been prioritized for surveillance, based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit. It is estimated that after 4 years of operation, the program will be monitoring 90 locations.

A major goal of the program is to collect valid water quality data, in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analysed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling in order to acquire complete plant process and distribution system details, and to designate (and retrofit if necessary) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are taken of the raw (ambient water) and the treated water at the treatment plant, and of consumer's tap water in the distribution system. In order to determine possible effects of distribution on water quality, both standing and free flow water in old and new sections of the distribution system are sampled.

Sampling is carried out by operational personnel who have been trained in the applicable procedures.

Comprehensive standardized procedures and Field Test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". All laboratory analyses are carried out by the MOE Laboratory Services Branch.

Data Reporting Mechanism

When the analytical results are transferred from the MOE laboratory into the DWSP system, printouts of the completed analyses are sent to the MOE District Officer, the appropriate operational staff and are also retained by the DWSP co-ordinator.

DWSP INPUTS AND OUTPUTS

The DWSP INPUTS and OUTPUTS are illustrated in Fig. 1.

PROGRAM INPUTS

PLANT AND DISTRIBUTION SYSTEM DESCRIPTION

The system description includes plant specific non-analytical information acquired through a questionnaire and initial plant visit. During the initial assessment of the plant and distribution system the questionnaire content is verified and

missing information added. It is intended that all data be kept current with scheduled annual updates.

The PLANT and DISTRIBUTION SYSTEM DESCRIPTION consists of the following seven components.

1. Process component inventory

All physical and chemical processes that the water is subjected to, from the intake pipe to the consumers' tap (where possible), are documented. These include: process type, general description of physical structures, material types, sizes, and retention time for each process within the plant. The processes may be as simple as transmission or as complex as carbon adsorption.

2. Treatment chemicals

Chemicals used in the treatment processes, their function, application point, supplier and brand-name are recorded. The chemical dosages applied on the day of sampling are recorded in DWSP.

3. Process control measurements

Documentation of in-plant monitoring of process parameters (turbidity, chlorine residuals, pH, aluminum residuals) including methods used, monitoring locations and frequency is contained in this section. In-plant monitoring results are generally not retained in DWSP but are retained by the Water Treatment Plant.

4. Design flow and retention time

The hydraulic capacity, designed and actual, is noted here. Retention time (the time that a block of water is retained in the plant) is also noted. The maximum, minimum and average flow as well as a record of the flow rate on the day of sampling are recorded in DWSP.

5. Distribution system description

This area includes the storage and transmission characteristics of the distribution system after the water leaves the plant.

6. Sampling system

Each plant is assessed for its adequacy in terms of sampling of bacteriological, organic and inorganic parameters. The prime considerations in the assessment and design of the sampling system are:

i/ the sample is an accurate representation of the actual water condition, eg. raw water has had no chemical treatment;

ii/ the water being sampled is not being modified by the sampling system;

iii/ the sample tap must be in a clean area of the plant, preferably a lab area;

iv/ the sample lines must be organically inert (no plastic, ideally stainless steel).

It is imperative that the sampled water be a reflection not of the sampling system but of the water itself.

The sampling system documentation includes: origin of the water; date sampling was initiated; size, length and material type (intake, discharge and tap), pump characteristics (model, type, capacity) and flow rate.

7. People

This section contains the names, addresses and phone numbers of current plant management and operational staff, distribution system management and operational staff, Medical Officer of Health and appropriate Ministry of Environment personnel associated with the plant.

FIELD DATA

The second major input to DWSP is field data.

Field data is collected at the plant and from the distribution system sites on the day of sampling. The field data consists of general operating conditions and the results of testing for field parameters. General operating conditions include chemicals used, dosages, flow and retention time on the day of sampling as well as monthly maximum, minimum and average flows. Field parameters include turbidity, chlorine residuals (free,combined and total), temperature and pH. These parameters are analysed according to standardized DWSP protocols to allow for interplant comparison.

LABORATORY ANALYTICAL DATA

The third major input to DWSP is Laboratory Analytical Data.

Samples gathered from the raw, treated and distribution sampling sites are analyzed for approximately 160 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. The parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments parameters may be measured for in a "scan" producing some results for parameters that are not on the DWSP priority list but which may be of interest. The majority of the parameters are measured on a routine basis however, those that are technically more difficult and/or costly to analyse for are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change notation will be made and intercomparison data documented.

PARAMETER REFERENCE INFORMATION

The fourth major input to DWSP is Parameter Reference Information

This is a catalogue of information for each substance analysed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database.

An example is shown in fig. 2.

A written copy (hard version) of the Parameter Reference Information will be available in the near future and is a new and sophisticated enhancement to the DWSP.

PROGRAM OUTPUTS

There are four major program outputs, Query, Action Alert, Report Generation and the Annual Report.

QUERY

All DWSP information is easily accessed through the Query function, therefore anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOE offices is being developed by the DWSP group.

ACTION ALERTS

Drinking Water quality in Ontario is evaluated against provincial objectives as outlined in the publication, Ontario Drinking Water Objectives (ISBN 0-7729-2725-1 revised 1983). This publication contains health-related Maximum Acceptable Concentrations for thirty substances. Should the reported level of a substance in treated water exceed the Ontario Drinking Water Objective an "Action Alert" requiring resampling and confirmation is issued. This assures that operational staff, health authorities and the public are notified as soon as possible of confirmation of an exceedance and remedial action taken. This report supplies a history of the occurrence of past exceedences at the plant plus a historical summary on the parameter of concern.

In the absence of Ontario Drinking Water Objectives, other agency guidelines which are documented in the Parameter Reference Information may be used. If these guidelines are exceeded the results are flagged and evaluated by DWSP personnel. An "Action Alert" will be issued if warranted.

REPORT GENERATION

Custom reports can be generated from DWSP to meet the needs of the regions and to respond to public requests.

ANNUAL REPORTS

It is the practice of DWSP to produce an annual report containing analytical data along with companion plant information.

FIG. 1

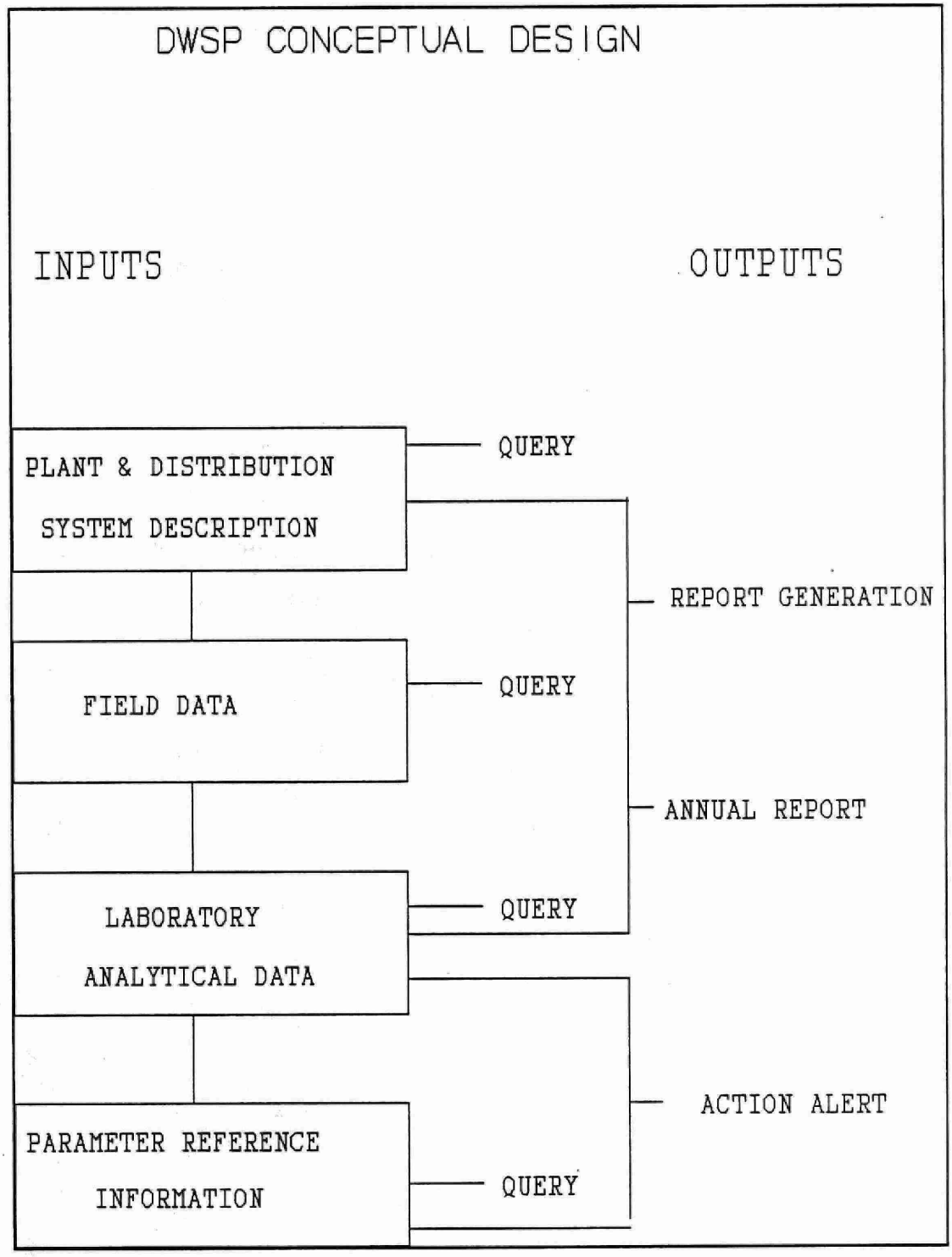

DWSP CONCEPTUAL DESIGN
INPUTS
OUTPUTS
PLANT & DISTRIBUTION SYSTEM DESCRIPTION
FIELD DATA
LABORATORY ANALYTICAL DATA
PARAMETER REFERENCE INFORMATION
QUERY
QUERY
QUERY
QUERY
REPORT GENERATION
ANNUAL REPORT
ACTION ALERT

FIG.2

MOE - DRINKING WATER ASSESSMENT PROGRAM (DWSP)

(B2001P) PARAMETER
REFERENCE
BENZENE

SOURCE	FROM	TO	METHOD	TARG	UNIT	NOTE
EPA	C 86/04		NOMETH	.00	063000 UG/L	RMCL
EPAA	C 80/11		NOMETH	6.60	063000 UG/L	
FERC	C 84/05		NOMETH	1.00	063000 UG/L	
WHO	C 84/01		NOMETH	10.00	064000 UG/L	

DESCRIPTION: NAME: BENZENE
CAS#: 71432
MOLECULAR FORMULAE: C_6H_6
DETECTION LIMIT: (FOR METHOD POCODO) 0.05 UG/L
SYNONYMS: BENZOLE, COAL NAPHTHA, CARBON OIL (27), CYCLOHEXATRIENE (41)
CHARACTERISTICS: COLOURLESS TO LIGHT YELLOW, MOBILE, NON-POLAR LIQUID, OF HIGHLY REFRACTIVE NATURE, AROMATIC, VAPOURS BURN WITH SMOKING FLAME (30)
PROPERTIES:
SOLUBILITY IN WATER: 1780-1800 MG/L AT 25 DEG C (41)
THRESHOLD ODOUR: NO DATA
THRESHOLD TASTE: 0.5 MG/L IN WATER (39)
ENVIRONMENTAL FATE: MAY BIOACCUMUALTE IN LIVING ORGANISMS, APPEARS TO BIOACCUMULATE IN ANIMAL TISSUES THAT EXHIBIT HIGH LIPID CONTENT OR ARE MAJOR METABOLIC SITES (LIVER, BRAIN), SMALL QUANITIES EVAPORATE FROM SOIL OR DEGRADE QUICKLY
SOURCES: PETROLEUM REFINING, SOLVENT RECOVERY, COAL TAR DISTILLATION, FOOD PROCESSING, TANNING.
USES: PREPERATION OF ETHYL BENZENE USED AS A STYRENE MONOMER, DETERGENTS, NYLON, AS INTERMEDIATE IN PESTICIDE PRODUCTION, SOLVENT IN RUBBER INDUSTRY, DEGREASING AND CLEANSING AGENT, GASOLINE.
TOXICITY: RATING 4 (VERY TOXIC); ACUTE - IRRITATES MUCOUS MEMBRANES, SYMPTONS INCLUDE RESTLESSNESS, CONVULSIONS, DEPRESSION, RESPIRATORY FAILURE; CHRONIC - ANEMIA AND LEUKEMIA (45).
CARINOGENICITY: HUMAN CARCINOGEN AND MUTAGEN
REMOVAL: GAC ADSORPTION, PRECIPITATION WITH ALUM FOLLOWED BY SEDIMENTATION, COAGULATION AND FLOCCULATION, SOLVENT EXTRACTION, OXIDATION (41).
MOLECULAR WEIGHT: 78.12 GRAMS
MELTING POINT: 5.5 DEGREES C (27)
BOILING POINT: 80.1 DEGREES C (27)
SPECIFIC GRAVITY: 0.879 AT 20 DEGREES C (27)
VAPOUR PRESSURE: 100 MM AT 26.1 DEGREES C
HENRY'S LAW CONSTANT: 0.00555 ATM M_3/MOLE
LOG OCT./WATER PAR.COEFF: K=1.0 1/N=1.6 R=.97 PH=5.3

Appendix B

DWSP SAMPLING GUIDELINE

i) RAW and TREATED at PLANT

General Chemistry	-500 mL clear plastic bottle -rinse bottle with sample three times and discard water -fill to line
Bacti	-250 mL clear glass bottle with white seal on cap -do not rinse bottle; preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL clear plastic bottle with white lid -rinse bottle and cap three times, discard -fill to line -add 10 drops nitric acid (**Caution:** HNO_3 is corrosive)
Volatiles (OPOPUP)	-250 mL clear glass bottle -do not rinse bottle -tilt bottle when filling -fill bottle completely; there should be no air bubbles.
Organic (OWOC),(OWTRI),(OAPAHX)	-1 liter brown glass bottle per scan -do not rinse bottle -fill to approx. 1" from top -when 'special pesticides' are requested three extra bottles per sample must be submitted
Cyanide	-500 mL clear plastic bottle -do not rinse bottle -fill to approx. 1" from top -add 10 drops sodium hydroxide (**Caution:** NaOH is corrosive)

Mercury	-250 mL clear glass bottle -rinse bottle and cap three times, discard then fill to top of label -add 20 drops each nitric acid and potassium dichromate (**Caution:** HNO_3 and $KCrO_7$ corrosive)
Phenols	-250 mL clear glass bottle -do <u>not</u> rinse bottle -fill to top of label as marked

<u>Steps</u>

1. Let cold water tap run for several minutes.
2. Record time in submission sheet.
3. Record teperature on submission sheet.
4. Fill up all bottles as per instructions.
5. Record chlorine residuals (free, combined and total for treated water only), turbidity and pH on submission sheet.

ii) Distribution Samples (standing water)

General Chemistry	-500 mL clear palstic bottle -rinse bottle with sample three times and discard -fill to line
Metals	-500 mL clear plastic bottle with white lid -rinse bottle and cap three times, discard -fill to line -add 10 drops nitric acid (**Caution:** HNO_3 is corrosive)

Steps:

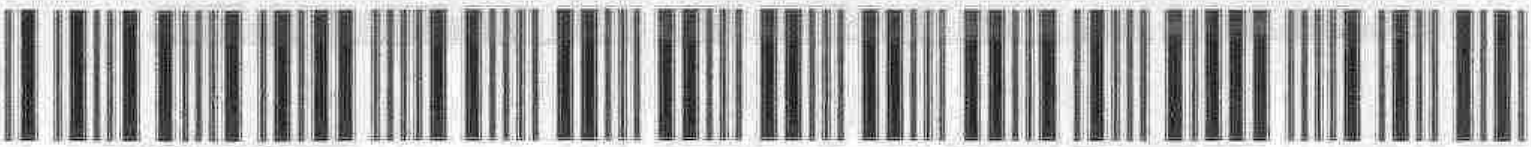
1. Record time on submission sheet.
2. Place bucket under tap and open cold water.
3. Fill to predetermined volume.
4. After mixing the water, record the temperature on the submission sheet.
5. Fill general chemistry and metals bottles.
6. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

iii) Distribution Samples (free flow)

General Chemistry	-500 mL clear plastic bottle -rinse bottle with sample three times and discard water -fill to line
Bacti	-250 mL clear glass bottle with white seal on cap -do <u>not</u> rinse bottle; preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL clear plastic bottle with white lid -rinse bottle and cap three times, discard -fill to line -add 10 drops nitric acid (**Caution:** HNO_3 is corrosive)
Volatiles (OPOPUP)	-250 mL clear glass bottle -do <u>not</u> rinse bottle; preservative has been added -tilt bottle when filling -fill bottle completely; there should be no air bubbles
Organic (OWOC),(OWTRI)	-1 liter brown glass bottle per scan -do <u>not</u> rinse bottle: preservative has been added -fill to approx. 1" from top
Cyanide	-500 mL clear plastic bottle -do <u>not</u> rinse bottle: preservative has been added -fill to approx. 1" from top -add 10 drops sodium hydroxide (**Caution:** NaOH is corrosive)
Mercury	-250 mL clear glass bottle -rinse bottle and cap three times, discard then fill to top of label -add 20 drops each nitric acid and potassium dichromate (**Caution:** HNO_3 and KCrO7 corrosive)

Steps:

1. Record time on submission sheet.
2. Let cold water flow for ten minutes.
3. Record temperature on submission sheet.
4. Fill all bottles as per instructions.
5. Record chlorine residuals (free, combined and total), tubidity and pH on submission sheet.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